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FLORA AUSTRALIENSIS.



FLORA AUSTRALIENSIS:

A DESCRIPTION

OF THE

PLANTS OF THE AUSTRALIAN TERRITORY.

BY

GEORGE BENTHAM, F.R.S., P.L.S.,

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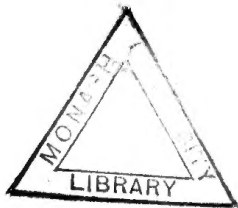
FERDINAND MUELLER, M.D., F.R.S. & L.S.,

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MYRTACEÆ TO COMPOSITÆ.

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OF THE AUSTRALIAN COLONIES.



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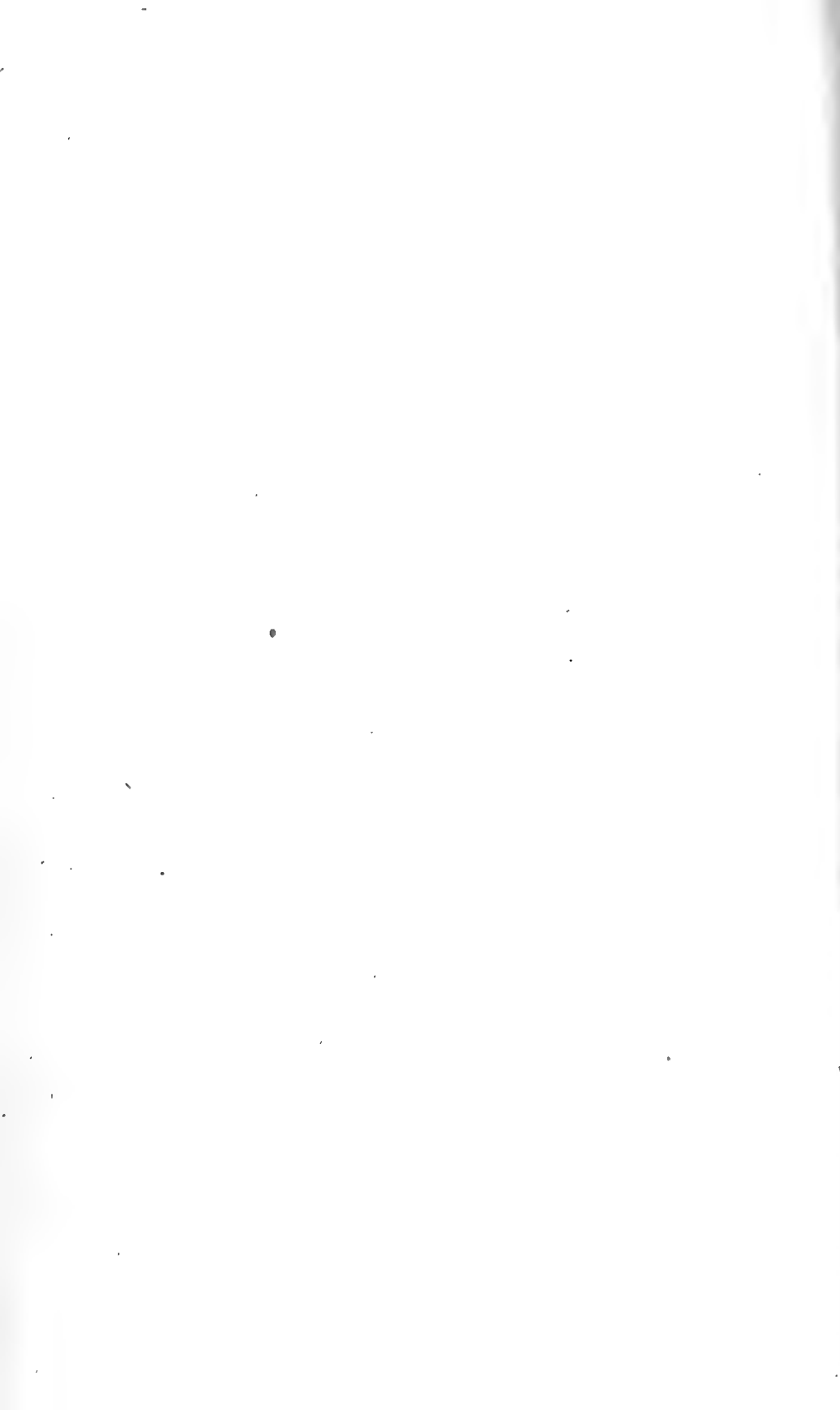
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CONSPPECTUS OF THE ORDERS CONTAINED IN THE THIRD VOLUME.

CLASS I. DICOTYLEDONS.

SUBCLASS I. POLYPETALÆ.

SERIES III. CALYCIFLORÆ.

(Continued from Vol. II.)

XLVIII. MYRTACEÆ. Trees or shrubs, very rarely undershrubs. Leaves opposite or alternate, without stipules, usually dotted. Flowers regular or nearly so. Calyx-lobes usually imbricate. Petals imbricate. Stamens indefinite or rarely definite; anthers opening in longitudinal slits or rarely in terminal pores. Ovary inferior, 2- or more-celled with 2 or more ovules in each cell, or rarely 1-celled with 1 placenta. Style undivided. Seeds without albumen. Cotyledons flat or folded, not convolute.

XLIX. MELASTOMACEÆ. Shrubs or rarely trees or herbs. Leaves opposite, not dotted, without stipules. Flowers regular or nearly so. Petals contorted. Stamens definite; anthers opening in terminal pores, very rarely in longitudinal slits. Ovary inferior or enclosed in the calyx, 2- or more-celled, with 2 or more ovules in each cell, or rarely 1-celled with a central placenta. Style undivided. Seeds without albumen. Cotyledons flat or folded, not convolute.

L. LYTHRARIÆ. Herbs shrubs or trees. Leaves opposite or alternate, without stipules. Flowers regular or nearly so. Calyx-lobes valvate. Petals usually crumpled in the bud. Stamens definite or rarely indefinite. Ovary usually enclosed in the calyx-tube, 2- or more-celled, with few or many ovules in each cell. Style undivided. Seeds without albumen. Cotyledons not convolute.

LI. ONAGRARIÆ. Herbs (in the Australian genera). Leaves opposite or alternate, without stipules. Flowers regular or nearly so, usually 4-merous. Calyx-lobes valvate. Petals imbricate. Stamens definite. Ovary inferior, 2- or more-celled, very rarely 1-celled. Style undivided. Seeds without albumen.

LII. SAMYDACEÆ. Trees or shrubs. Leaves alternate. Stipules small or none. Flowers regular or nearly so. Petals and sepals nearly similar. Stamens indefinite or alternating with small scales or glands. Ovary 1-celled with parietal placentas. Style entire or branched. Seeds albuminous.

LIII. PASSIFLOREÆ. Climbers (in the Australian genera). Leaves alternate, with stipules. Flowers regular. Petals persistent with the calyx-lobes and often resembling them. Stamens definite. Ovary stalked, 1-celled, with parietal placentas. Style branched. Seeds albuminous.

LIV. CUCURBITACEÆ. Herbs either prostrate or climbing with tendrils. Leaves alternate, without stipules. Flowers unisexual, regular. Stamens 3 or 5. Ovary inferior, at first 1-celled, the (3) parietal placentas soon meeting in the axis and dividing the cavity into 3 or 6 cells or remaining 1-celled with 1 placenta. Style entire or branched. Seeds without albumen.

LV. FICOIDEÆ. Herbs or rarely undershrubs, sometimes succulent. Leaves alternate or rarely opposite, without any or with minute scarious stipules. Petals none or indefinite and narrow. Stamens indefinite or rarely definite. Ovary inferior or superior, several-celled (rarely reduced to 1 cell). Placentas basal or nearly so. Styles free or united at the base. Embryo curved in a mealy albumen.

LVI. UMBELLIFERÆ. Herbs or rarely shrubs. Leaves alternate, often dissected, without any or rarely with scarious stipules. Calyx-teeth small or obsolete. Stamens as many as petals, and inserted with them round an epigynous 2-lobed disk. Ovary inferior, usually 2-celled with 1 pendulous ovule in each cell. Styles 2. Fruit dividing into 2 small dry 1-seeded nuts. Seeds albuminous with a minute embryo.

LVII. ARALIACEÆ. Trees shrubs or very rarely tall herbs. Leaves alternate, without stipules. Flowers of *Umbelliferae*, except that the ovary-cells are often more than two. Fruit drupaceous, the endocarp hardened into 2 or more distinct, 1-seeded pyrenes, the epicarp fleshy, succulent, or rarely dry and thin. Seeds albuminous with a minute embryo.

LVIII. CORNACEÆ. Trees shrubs or very rarely herbs. Leaves opposite or very rarely (as in the Australian genus) alternate, without stipules. Petals valvate. Stamens as many or twice as many as petals. Ovary inferior, 1- or 2-celled with 1 pendulous ovule in each cell. Style simple. Seeds albuminous, the embryo nearly as long as the albumen.

SUBCLASS II. MONOPETALÆ.

Petals united into a single lobed corolla (exceptionally free in a few *Loranthaceæ*).

LIX. LORANTHACEÆ. Parasitical shrubs or trees. Leaves opposite or alternate, without stipules. Stamens opposite the corolla-lobes or petals. Ovary inferior, 1-celled, with 1 erect ovule, not perceptible till the flowering is over. Seeds albuminous.

LX. CAPRIFOLIACEÆ. Trees, shrubs, or climbers, rarely herbs. Leaves opposite (pinnate in the Australian genus) without real stipules. Stamens as many as corolla-lobes and alternate with them. Ovary inferior, 2- or more-celled. Seeds albuminous.

LXI. RUBIACEÆ. Trees, shrubs, or herbs. Leaves opposite, with interpetiolar or sheathing stipules. Stamens as many as corolla-lobes and alternate with them. Ovary inferior, 2- or more-celled, very rarely reduced to 1 cell. Seeds albuminous.

LXII. COMPOSITÆ. Herbs shrubs or rarely trees. Leaves opposite or alternate, without stipules. Flowers or florets collected in heads, each head surrounded by a calyx-like involucre, the true calyx of each floret wanting or reduced to a pappus. Stamens as many as corolla-lobes and alternate with them. Ovary inferior, 1-celled, with 1 erect ovule. Seed without albumen.

FLORA AUSTRALIENSIS.

ORDER XLVIII. MYRTACEÆ.

Calyx-tube adnate to the ovary at the base or up to the insertion of the stamens; limb more or less divided (usually to the base) into 4 or 5, very rarely 3 or more than 5, lobes or teeth, or reduced to a narrow border, or entirely wanting; lobes usually imbricate or open in the bud. Petals usually as many as calyx-lobes, very much imbricate in the bud, the external one sometimes larger than the others, but usually all nearly equal when expanded, sometimes all concrete and falling off in a single operculum, or rarely entirely wanting. Stamens indefinite, usually numerous or rarely few and definite, inserted in one or several rows on a disk, either thin and lining the calyx-tube above the ovary and forming a thickened ring at its orifice, or thicker and forming a ring close round the summit of the ovary; filaments free or rarely united into a ring or tube at the base, or into as many bundles as there are calyx-lobes; anthers 2-celled, versatile or attached by the base, the cells opening in longitudinal slits, or rarely in terminal pores. Ovary inferior or rarely almost superior, but enclosed in the calyx-tube, sometimes 1-celled, with a placenta attached to the base or adnate to one side, more frequently 2- or more celled, with the placentas in the inner angle of each cell, very rarely 1-celled, with 2 parietal placentas. Style simple, with a small or a capitate or peltate, very rarely lobed stigma. Ovules 2 or more to each placenta, in 2 or more rows, or very rarely solitary, erect pendulous or laterally attached, anatropous or amphitropous. Fruit inferior, adnate to the calyx-tube, and crowned by the persistent limb, or marked by its scar when deciduous, or very rarely half or almost wholly superior, and surrounded at the base by the persistent calyx-tube, either capsular and opening loculicidally at the summit, in as many valves as cells, or indehiscent, dry, and 1-seeded, or succulent and indehiscent. Perfect seeds usually very few or solitary in each cell, even when the ovules are numerous, or rarely numerous and perfect; teeth either thin and membranous, or crustaceous, fleshy or bony. Albumen none, or very scanty near the hilum. Embryo straight or variously curved, fleshy, with minute cotyledons at one end, or with large, flat, or variously folded cotyledons, or with thick fleshy distinct or consolidated cotyledons, and an exceedingly short radicle, or rarely apparently homogeneous, the cotyledons incon-

spicuous before germination. Abortive ovules in many capsular genera, enlarged without being fertilized, and simulating the seeds, but of a hard, nearly homogeneous, woody, or granular consistence.—Trees or shrubs, very rarely undershrubs, Leaves simple, entire or rarely obscurely crenate-toothed, opposite or less frequently alternate, more or less dotted in all but the *Lecythideæ*, with small resinous glands, either pellucid or black and superficial, often scarcely visible when the leaf is thick. Stipules none, or rarely very minute and fugacious. Flowers solitary or in racemes panicles or cymes, axillary or apparently terminal from the terminal bud not growing out till after the flowering is over. Bracts solitary at the base of the peduncles, or forming an imbricate involucre from the abortion of the lower flowers. Bracteoles 2 at the base of or on the pedicel, sometimes very small or abortive, and often exceedingly deciduous.

The fleshy-fruited genera of the Order are widely spread over the tropical regions both of the New and the Old World, including many of the largest forest trees, and are, in Australia, almost limited to the tropics, a very few species extending into N. S. Wales, and only one into Victoria. The capsular genera are either entirely or chiefly Australian; four of the larger ones, represented by a few species in New Caledonia and the Indian Archipelago, one *Xanthostemon*, represented by more species in New Caledonia than in Australia, two small ones are in New Caledonia, and not yet found in Australia, one *Eucalyptus*, is represented in Timor, if not in the Moluccas, but is not in New Caledonia, another, *Metrosideros*, is more abundant in the Pacific islands than in Australia, and extends also to the Malayan peninsula, and in anomalous forms (perhaps not strictly congeners) to S. Africa and S. America. Two of the widest-spread genera, *Leptospermum* and *Metrosideros*, are also in New Zealand.

TRIBE I. Chamælaucieæ.—Ovary 1-celled, with a single placenta. Fruit indehiscent, dry, with 1 or rarely 2 seeds. Shrubs often heath-like. Leaves small. Flowers solitary, or very rarely 2 together in the axils of the leaves or bracts, scattered along the branches, or forming a terminal head.

Stamens definite, in a single series, more or less united in a ring at the base, and often alternating with staminodia.

Stamens 8, without staminodia. Flowers 4-merous, the outer ones of the head enlarged and sterile.

Stamens 10, alternating with as many staminodia (very minute or wanting in one species of *Darwinia* and one of *Verticordia*).

Calyx-lobes 5, subulate, entire

Calyx-lobes 5, broad, entire or shortly ciliolate.

Anthers globose or didymous, opening in terminal pores or short slits. Style usually long

Anther-cells parallel, opening in longitudinal slits. Style short

Calyx-lobes 5 or 10, deeply divided into subulate, plumose, or hair-like lobes

Stamens 20, without staminodia. Calyx-lobes 10, entire

Stamens indefinite, without staminodia, numerous, or, if few, not regularly alternate or opposite to the calyx-lobes.

Calyx-lobes persistent, or rarely falling off with the upper portion of the tube. Ovules 2, on a filiform placenta attached both to the base and summit of the ovary.

Calyx-lobes terminating in a long bristle or rarely in a short point

Calyx-lobes truncate or retuse, not pointed

Calyx-lobes short, deciduous. Ovules 2, the placenta basal or adnate to one side of the ovary

1. ACTINODIUM.

3. HOMORANTHIUS.

2. DARWINIA.

6. CHAMÆLAUCIUM.

4. VERTICORDIA.

5. PILEANTHIUS.

7. CALYTHRIX.

8. LHOTZKYA.

9. HOMALOCALYX.

- Stamens 5 or 10, regularly alternate with or opposite to the calyx-lobes, quite distinct and without staminodia.
 Ovules 2 or more, ascending or attached to a lateral placenta. Stamens, when 5, alternate with the petals 10. *THRYPTOMENE*.
 Ovules 2 or 4, pendulous from the summit of a filiform placenta. Stamens, when 5, opposite to the petals 11. *MICROMYRTUS*.

TRIBE II. Leptospermeæ.—*Ovary divided into 2 to 5, or rarely more cells. Capsule opening at the summit in as many valves as there are cells, or very rarely indehiscent, with 1 or 2 seeds.*

- Stamens in a single row, definite or indefinite, shorter than or rarely shortly exceeding the petals, free or united in bundles, alternating with the petals. Leaves small or narrow.
 Leaves opposite.
 Ovules 2 in each cell, superposed or solitary. Flowers small, in axillary cymes, or rarely solitary 12. *SCHOLTZIA*.
 Ovules several in each cell, in 2 rows or in a ring round a peltate placenta, or if 2, collateral. Flowers axillary, solitary or rarely few, on a common peduncle.
 Stamens free, rarely exceeding 20, and usually much fewer. Flowers small 13. *BÆCKEA*.
 Stamens united in bundles, alternating with the petals. Flowers small 14. *ASTARTEA*.
 Stamens numerous, often united in a ring at the base 15. *HYPOCALYMNA*.
 Stamens numerous, free. Calyx large, red, urceolate 16. *BALAUSTION*.
 Leaves alternate.
 Stamens free, definite, or if indefinite none opposite the centre of the petals. Flowers in globular sessile heads 17. *AGONIS*.
 Stamens numerous, in a continuous series. Flowers solitary or crowded, but not in heads 18. *LEPTOSPERMUM*.
 Stamens exceeding the petals, indefinite, either free or united in bundles, opposite the petals. Leaves small or narrow, or rarely large and many-nerved. Flowers closely sessile (except in some species of *Kunzea*).
 Anthers versatile, with parallel cells, opening longitudinally.
 Stamens free (almost in 5 bundles in 1 species of *Callistemon*). Calyx-lobes usually persistent. Ovary 2- to 5-celled. Seeds pendulous. Flowers in heads or solitary, or rarely in short spikes 19. *KUNZEA*.
 Calyx-lobes usually deciduous. Ovary 3- or 4-celled. Seeds ascending. Flowers in spikes, terminal or crowned by the year's shoot 20. *CALLISTEMON*.
 Stamens united in 5 bundles opposite the petals (almost free in 1 species of *Melaleuca*).
 Staminal bundles united high up in a tube 21. *LAMARCHEA*.
 Staminal bundles distinct or scarcely united at the base.
 Ovules several in each cell 22. *MELALEUCA*.
 Ovules solitary in each cell 23. *CONOTHAMNUS*.
 Anthers erect, attached by the base. Stamens united in bundles opposite the petals, or nearly free in some species of *Eremæa* and *Phymatocarpus*.
 Ovules 1 to 4 in each cell, peltate and laterally attached.
 Anther-cells opening at the top in transverse valves. Ovules 1 in each cell 24. *BEAUFORTIA*.
 Anther-cells placed back to back, and opening in outward longitudinal slits. Ovules 4 in each cell 25. *REGELIA*.
 Ovules 2 or more in each cell, erect or ascending, linear or cuculate.

- Anthers obovoid, the cells back to back, opening in outward transverse valves. Ovules 2 to 4 in each cell. Leaves small, opposite 26. *PHYMATOCARPUS*.
- Anthers oblong or linear, the cells parallel, turned inwards, opening in longitudinal slits. Ovules several. Leaves long, alternate. Flowers lateral 27. *CALOTHAMNUS*.
- Anthers obovoid, the cells back to back, opening in outward longitudinal slits. Ovules several. Leaves small, scattered. Flowers 1 to 3, nearly terminal 28. *EREMÆA*.
- Stamens numerous, free or obscurely united at the base. Petals attached by a broad base, free or consolidated into an operculum. Leaves usually large. Flowers in umbels heads or cymes, rarely sessile on the stem.
- Calyx-teeth distinct, distant. Petals free 29. *ANGOPHORA*.
- Calyx truncate, entire or with 4 minute teeth. Petals united in an operculum 30. *EUCALYPTUS*.
- Stamens exceeding the petals, indefinite, free, or rarely united in bundles opposite the petals. Leaves large or myrtle-like, pinnate-veined. Flowers in pedunculate heads cymes or corymbs, or rarely solitary and pedicellate.
- (Stamens scarcely exceeding the petals in some species of *Tristania*.)
- Stamens united in 5 bundles. Leaves alternate or in one species opposite 31. *TRISTANIA*.
- Outer stamens with reniform sterile anthers. Leaves opposite, narrow 33. *LYSICARPUS*.
- Flowers in globular pedunculate heads. Leaves opposite. Stamens of *Metrosideros* 32. *SYNCARPIA*.
- Flowers in cymes. Stamens free, all perfect.
- Ovules numerous, horizontal or ascending, covering the placenta. Leaves opposite 34. *METROSIDEROS*.
- Ovules in a ring round a club-shaped or peltate placenta. Leaves alternate 35. *XANTHOSTEMON*.
- Ovules pendulous or recurved. Calyx-lobes almost petal-like. Leaves opposite 36. *BACKHOUSIA*.
- Stamens indefinite, free. Fruit dry, indehiscent. Ovary perfectly or imperfectly 2-celled or 1-celled by abortion.
- Calyx-lobes almost petal-like. Petals 4, shorter than or scarcely exceeding the calyx-lobes. Flowers in cymes heads or umbels 36. *BACKHOUSIA*.
- Calyx-lobes 8. Petals none. Flowers solitary, sessile 37. *OSBORNIA*.
- Calyx-lobes 5, narrow. Petals 5. Flowers solitary, pedicellate 41. *FENZLIA*.
- TRIBE III. Myrtææ.**—Ovary divided into 2 or more cells, or very rarely 1-celled, with 2 parietal placentas. Fruit an indehiscent berry or drupe.
- Ovary 1-celled, with 2 parietal placentas. Leaves 3-nerved 40. *RHODAMNIA*.
- Ovary 2-celled (or 1-celled by abortion), with 2 or 3 superposed ovules in each cell. Leaves white underneath 41. *FENZLIA*.
- Ovary with 2, 4, or 6 rows of superposed ovules, separated by vertical septa, the ovules themselves separated by transverse septa (1-, 2-, or 3-celled, with double rows of ovules in each cell, all separated by spurious septa.) Leaves sometimes 3-nerved 38. *RHODOMYRTUS*.
- Ovary 2- or 3-celled, with several ovules in each cell, without spurious dissepiments.
- Embryo long and narrow, curved, circular, or spiral, with small cotyledons. Flowers 5-merous or rarely 4-merous, solitary or racemose 39. *MYRTUS*.
- Embryo thick and fleshy, either indivisible or with 2 thick fleshy cotyledons and a short radicle. Flowers 4-merous or rarely 5-merous, solitary or in trichotomous cymes or panicles 43. *EUGENIA*.

Ovary 5- or rarely 4-celled, with 2 to 6 ovules in each cell. Embryo of *Myrtus* 42. NELITRIS.
(One species of *Kunzea*, has the fruit succulent and pulpy.)

TRIBE IV. **Lecythydeæ** (SUBTRIBE **Barringtoniæ**).—Ovary divided more or less completely into 2 or more cells. Fruit indehiscent, hard and fibrous or fleshy. Leaves alternate or crowded at the ends of the branches, large, not dotted. Calyx often nearly valvate.

Stamens all perfect. Fruit angular, fibrous, with a single seed . . . 44. BARRINGTONIA.
Outer or inner stamens, or both without anthers. Fruit ovoid or globular, not angular, fleshy, with several seeds enveloped in pulp . . . 45. CAREYA.

(*Bartlingia*, Ad. Brongn., referred by Schauer to *Chamælaucieæ*, proves to be *Pultenea obovata*, described above, Vol. II. p. 123, having been originally examined in a state of very young bud, before the irregularity of the petals was developed.)

TRIBE I. **CHAMÆLAUCIÆ**.—Ovary 1-celled. Fruit 1- or rarely 2-seeded, indehiscent. Shrubs often heath-like, with small leaves. Flowers usually small, solitary or very rarely 2 or 3 together in the axils of the leaves or bracts, either along the branches or in terminal heads, the floral leaves either like the stem-leaves, or dilated and bract-like, or forming an involucre.

The first two subtribes of *Chamælaucieæ* have a peculiar habit, which had induced their being proposed as a distinct Order, but some of the third subtribe (*Thryptomeneæ*) pass so gradually into the *Leptospermeæ*, as only to be distinguishable from *Bæckeæ* by the examination of the ovary.

SUBTRIBE I. **EUCHAMÆLAUCIÆ**.—Stamens twice as many as petals, with intervening staminodia rarely wanting, or 4 times as many as petals without staminodia, the filaments more or less distinctly united in a ring at the base. Ovules 2 to 10, attached to an excentric basal placenta, or in 2 rows, on a short lateral placenta. Embryo, where known, consisting of a thick radicle, the shape of the seed, with a slender neck lying on the summit, apparently entire or with 2 minute cotyledons at the end.

1. **ACTINODIUM**, Schauer.

(*Triphelia*, R. Br.)

Calyx-tube acutely 4-angled; lobes 4, petal-like, entire. Petals 4, as long as the calyx. Stamens 8, in a single row, those opposite the sepals more inflected in the bud; anthers nearly globular, opening in 2 minute pores; staminodia none. Ovary 1-celled, with a single ovule, erect from a short basal placenta; style exerted, with a terminal oblong stigma. Fruit . . .—Shrub, with the habit of *Darwinia*. Leaves heath-like, scattered. Flowers small, in terminal heads, the outer barren flowers with elongated calyx-lobes, petals, and petal-like bracts and bractcoles forming a ray, within an involucre of coloured floral leaves or bracts.

The genus is limited to the single Australian species.

1. **A. Cunninghamii**, Schau. in Lindl. *Introd. Nat. Syst.* ed. 2. 440, *Myrt. Xeroc.* 24, t. 1 B, and in *Pl. Preiss.* i. 96. An erect glabrous heath-like shrub of 1 to 2 feet, with slender virgate branches. Leaves scat-

tered, sessile, erect or slightly spreading, linear-terete and channelled above or triquetrous, obtuse or mucronulate, either slender and distant, or short, thick, and almost imbricate. Perfect flowers apparently pink or white, very small and numerous, in a dense hemispherical terminal head, each flower in the axil of a lanceolate or linear, almost petal-like bract, with 2 similar bracteoles under the calyx, the outer flowers of the head usually barren, pedicellate, the bracts, bracteoles, calyx-lobes, and petals, all linear and petal-like, and growing out to 3 or even 4 lines, forming an apparently white ray to the head, and the whole surrounded by a short involucre of more or less coloured, oblong or obovate, acuminate, imbricate bracts or floral leaves passing into the stem-leaves. Calyx 1 to $1\frac{1}{2}$ lines long; the lobes about as long as the tube. Petals narrow, entire or toothed at the end. After the flowering is over, either the central shoot grows out, leaving the old receptacle as a thickening of the branch, or 2 or 3 new shoots grow out from under the head.—*Triphelia brunoides*, R. Br.; Endl. in Hueg. Enum. 48; *Actinodium proliferum*, Turcz. in Bull. Mosc. 1849, ii. 17.

W. Australia. King George's Sound and adjoining districts, and eastward to Cape Riche, *R. Brown*, and others; *Drummond*, 3rd Coll. n. 211, 4th Coll. n. 43 and 44, 5th Coll. n. 102; *Preiss*, n. 223; *Moir's Inlet*, *Marwell*.

2. DARWINIA, Rudge.

(*Genetyllis*, DC.; *Hedaronia*, Lindl.; *Polyzone*, Endl.; *Schuermaunia*, F. Muell.; *Cryptostemon*, F. Muell.; *Francisia*, Endl.)

Calyx-tube nearly cylindrical, turbinate or hemispherical, the lower adnate part more or less distinctly 5- or rarely 10-ribbed, the upper disk-bearing free portion scarcely ribbed; lobes 5, scarious or petal-like, often very minute. Petals 5, entire. Stamens 10, alternating with as many staminodia, very shortly united at the base in a single ring, or rarely the staminodia when broad forming an outer row; anthers globular, opening in 2 minute pores near the scarcely prominent connective. Ovary 1-celled, with 2, 3, and very rarely (except in *D. micropetala*) 4 ovules, inserted on a very short basal, usually excentric placenta. Style exserted, usually long, and more or less bearded towards the end; stigma terminal, minute or capitate. Fruit formed of the slightly-enlarged and somewhat hardened calyx. Seed usually solitary, filling the fruit, testa very thin. Embryo consisting of a homogeneous mass or thick radicle of the shape of the seed, with a rather slender neck lying along the flattened apex, entire, or perhaps divided at the point into two minute cotyledons.—Shrubs with usually a heath-like or *Diosma*-like habit. Leaves small, opposite or scattered, entire. Flowers small, nearly sessile, or shortly pedicellate in the upper axils, or in terminal heads, the floral leaves or bracts either large and coloured, or small like the stem-leaves. Bracteoles thin and scarious, concave, and keeled, enclosing the young bud, and very deciduous, or small, narrow, and more persistent.

The genus is limited to Australia. Perfect seeds have been examined only in very few species.

SECTION I. Genetyllis.—*Calyx-lobes not exceeding half the length of the petals, and often very minute. Flowers in single terminal heads, rarely becoming lateral by the elongation of the central axis.*

A. *Flower-heads usually nodding, surrounded by a campanulate or ovoid involucre of coloured imbricated bracts longer than the flowers, and enclosing them.*

Leaves scattered, oblong, $\frac{1}{2}$ in. long or more, with recurved margins. Involucral bracts obovate, oblong.

Leaves and bracts entire.

Leaves elliptical-oblong. Inner bracts obovate, streaked.

Calyx 10-ribbed at the base 1. *D. macrostegia*.

Leaves linear-oblong. Inner bracts broadly oblong, one-coloured. Calyx 5- or rarely 7-ribbed at the base . . . 2. *D. Hookeriana*.

Leaves and bracts ciliate. Calyx without prominent ribs . . . 3. *D. fimbriata*.

Leaves opposite, small, erect, concave. Involucral bracts broadly oblong, entire. Calyx prominently 5-ribbed at the base . . . 4. *D. speciosa*.

Leaves linear, semiterete or triquetrous, scattered, crowded.

Involucral bracts ovate-oblong, entire. Flowers numerous in the head. Bracteoles narrow. Calyx-lobes very small . . . 5. *D. Meissneri*.

Involucral bracts ovate-lanceolate, numerous, entire. Flowers 4 in the head. Bracteoles orbicular. Calyx-lobes broad, half as long as the petals 6. *D. helichrysoides*.

Involucral bracts linear, numerous, ciliate. Flowers numerous in the head. Bracteoles linear. Calyx-lobes very small . . . 7. *D. æderoides*.

B. *Flower-heads erect or nodding, surrounded by an involucre of coloured bracts scarcely exceeding the flowers, or shorter than them and usually spreading.*

Leaves scattered and crowded, not opposite. Flowers numerous in the head.

Leaves semiterete or triquetrous, 3 to 4 lines long. Calyx-tube irregularly glandulose-rugose 8. *D. virescens*.

Leaves oblong, rarely above 2 lines long. Calyx-tube marked with parallel rings of glandular papillæ.

Leaves with recurved ciliate margins. Bracteoles short. Calyx fully 3 lines, with 2 or 3 rings. Staminodia lanceolate . . . 9. *D. Oldfieldii*.

Leaves entire. Bracteoles narrow. Calyx about 2 lines, with 5 or 6 rings. Staminodia filiform 10. *D. purpurea*.

Leaves mostly opposite, oblong, $\frac{1}{4}$ to $\frac{1}{2}$ in. long. Flowers 4 in the head. Calyx smooth, with an obscure glandular ring . . . 11. *D. citriodora*.

C. *Flowers in terminal heads or in the upper axils, the floral leaves or bracts not very different from the stem leaves.*

Leaves mostly opposite, linear lanceolate or falcate. Stems diffuse or prostrate.

Leaves with revolute margins. Flowers 4 to 8 in the head.

Petals with narrow concave coloured tips. Staminodia prominently glandular 12. *D. thymoides*.

Leaves triquetrous or laterally flattened. Flowers 2 to 4 in the head. Petals ovate. Staminodia small and subulate . . . 13. *D. taxifolia*.

Leaves crowded, not opposite. Erect bushy shrubs.

Leaves obovate or oblong, often imbricate. Flowers distinctly pedicellate, often becoming lateral by the elongation of the shoot.

Flowers numerous, scarcely 2 lines long. Calyx narrow . . . 14. *D. vestita*.

Flowers few, nearly 4 lines long. Calyx broadly turbinate . . . 15. *D. pauciflora*.

Leaves semiterete or triquetrous. Flowers sessile or nearly so, the heads always terminal.

Calyx marked with numerous rings of glandular tubercles or papillæ 16. *D. diosmoides*.

Calyx 5-ribbed, otherwise smooth 17. *D. fascicularis*.

SECTION II. *Schuermannia*, F. Muell.—*Calyx-lobes as long as the petals, or longer.*

Flowers in the axils of the upper leaves, few or forming compound heads or corymbs, or rarely simple heads.

Flowers in dense terminal simple heads. Inner bracts broad, thin, and coloured, but short. Leaves linear, slender, crowded.

Staminodia broad 18. *D. pinifolia*.

Flowers in compound heads (contracted corymbs). Leaves mostly opposite.

Compound heads hemispherical. Bracts ovate, coloured, but shorter than the flowers. Leaves linear or lanceolate, often $\frac{1}{2}$ in. long, with ciliate edges. Staminodia lanceolate . . . 19. *D. sanguinea*.

Compound heads small, globular, without coloured bracts.

Leaves triquetrous, about 1 line long. Staminodia minute . . . 20. *D. micropetala*.

Flowers few in the upper axils. Calyx glabrous. Leaves opposite.

Leaves linear-triquetrous. Flowers nearly sessile. Petals as long as the calyx-lobes. Ovules 2 21. *D. Schuermanni*.

Leaves obovate. Flowers pedicellate. Petals half as long as the calyx-lobes. Ovules 6 23. *D. Thomasii*.

Flowers in broad leafy corymbs. Calyx hemispherical, softly villous. Leaves opposite, linear-triquetrous 22. *D. verticordina*.

SECTION I. GENETYLLIS.—Calyx-lobes not exceeding half the length of the petals, and often very minute. Flowers in simple terminal heads, rarely becoming lateral by the elongation of the central axis.

In the whole of this section the inflorescence is quite simple,—a reduced spike or raceme, each flower being sessile or very shortly pedicellate in the axil of a floral leaf or bract, with a pair of concave bracteoles close under the calyx. In the first group, comprising the first 7 species, the terminal shoot is wholly arrested, the flowers forming a strictly terminal head on a club-shaped, obovoid, globular, or broad and disk-shaped receptacle, the floral leaves within the head reduced to small scarious bracts, those subtending the external flowers, with more or less of the stem-leaves next to the head much enlarged, coloured, and petal-like, forming a campanulate or ovoid involucre completely enclosing the flowers. In the second group, comprising the species 8 to 11, the flower-heads are as compact or nearly so, but the involucres are short, more or less spreading, and do not conceal the flowers. In the third, comprising the species 12 to 17, the heads are smaller and looser, the terminal shoot occasionally grows out from the centre, the receptacle is but slightly thickened, the floral leaves differ but little from those of the stem, and the flowers are sometimes pedicellate, thus showing the connection with the axillary inflorescence of those species of the following section, where it is simple.

1. ***D. macrostegia***, Benth. in Journ. Linn. Soc. ix. 179.—Erect, attaining 2 or 3 ft. Leaves scattered, elliptical-oblong or slightly cuneate, very obtuse, $\frac{1}{2}$ to $\frac{3}{4}$ in. long, with recurved entire margins. Involucres campanulate, nearly $1\frac{1}{2}$ in. long, the petal-like inner bracts broadly obovate, pale yellow streaked with red, quite entire, a few outer ones shorter and redder, and 2 or 3 of the lowest passing into the stem-leaves. Flowers rather numerous. Bracteoles acuminate, as long as the flowers, deciduous. Calyx-tube marked in the adnate part with 10 prominent ribs and transversely wrinkled between them, the free part smooth; lobes very small, obovate. Petals white, about $1\frac{1}{2}$ lines long. Stamens short; staminodia short, linear-clavate. Style nearly as long as the involucre, bearded towards the end. Ovules 2.—*Genetyllis macrostegia*, Turcz. in Bull. Mosc. 1849, ii. 18; Kipp. in Journ. Linn. Soc. i. 51; *Hedaroma tulipifera*, Lindl. in Gardn. Chron. 1854, 323; *Genetyllis tulipifera*, Hook. Bot. Mag. t. 4858.

W. Australia, Drummond, 4th Coll. n. 40, 5th Coll. n. 97. Stirling range and E. Mount Barren, Maxwell.

2. **D. Hookeriana**, Benth. in Journ. Linn. Soc. ix. 179.—Very nearly resembles *D. macrostegia*, but is usually smaller, more slender, and less twiggy. Leaves scattered, linear-oblong, $\frac{1}{2}$ to $\frac{3}{4}$ in. long, with recurved entire margins. Involucres ovoid, about $1\frac{1}{2}$ in. long, the inner bracts broadly oblong, of a uniform pink colour, or slightly white at the edge, and not streaked, the outer bracts short and recurved, but otherwise like the stem leaves. Flowers like those of *D. macrostegia*, but rather smaller, and the base of the calyx-tube has only 5 or very rarely 6 or 7 prominent ribs, and is only slightly tuberculate between them. Stamens, staminodia, and style as in *D. macrostegia*, or the style rather stouter.—*Genetyllis macrostegia*, Hook. Bot. Mag. t. 4860, not of Turcz.; *G. Hookeriana*, Meissn. in Journ. Linn. Soc. i. 37.

W. Australia, Drummond, 5th Coll. n. 98; Maxwell.

3. **D. fimbriata**, Benth. in Journ. Linn. Soc. ix. 179.—A bushy shrub of 1 to 2 feet. Leaves scattered, often crowded, oblong-elliptical, very obtuse, 2 to 3 lines, or on the main branches 4 lines long, the margins recurved and strongly ciliate-denticulate. Involucres ovoid, about $\frac{3}{4}$ in. long or rather more, the inner bracts petaloid, pink, broadly oblong or almost cuneate and very obtuse, the outer ones short, broad, and squarrose but coloured, and all ciliate. Flowers rather numerous. Bracteoles rather shorter than the flowers. Calyx about 3 lines long, without prominent ribs; lobes minute or quite inconspicuous. Petals triangular, about 1 line long. Staminodia filiform, nearly as long as the filaments. Styles thick, often as long as the involucre, shortly bearded towards the end.—*Genetyllis fimbriata*, Kipp. in Journ. Linn. Soc. i. 49; Hook. Bot. Mag. t. 5468.

W. Australia. Stirling range, E. extremity, Drummond, 5th Coll. n. 99.

4. **D. speciosa**, Benth. in Journ. Linn. Soc. ix. 179.—A small shrub with numerous short ascending or erect branches, not above 6 in. in our specimens. Leaves all opposite, erect, narrow-oblong, obtuse, concave, 2 to 3 lines long, or rather more on the main stems. Involucres ovoid, above 1 in. long, apparently red; inner bracts ovate-oblong, entire, a few outer ones much shorter, but not squarrose. Bracteoles lanceolate, shorter than the calyx. Calyx 2 to $2\frac{1}{2}$ lines long, the adnate part prominently 5-ribbed; lobes lanceolate or acuminate, often nearly half as long as the petals. Petals 1 to $1\frac{1}{2}$ lines long. Staminodia small.—*Genetyllis speciosa*, Meissn. in Journ. Linn. Soc. i. 36.

W. Australia. Between Moore and Murchison rivers, Drummond, 6th Coll. n. 34.

5. **D. Meissneri**, Benth. in Journ. Linn. Soc. ix. 179.—An erect heath-like shrub. Leaves scattered, crowded, linear, mostly 3 to 4 lines long, convex underneath, but furrowed next to the margin. Involucres broadly campanulate, $\frac{3}{4}$ to above 1 in. long; inner bracts ovate or ovate-oblong, shortly acuminate or mucronulate, apparently red, entire; outer ones short, ovate, with green leaf-like points. Flowers about 8 to 10 in the head. Bracteoles narrow, often exceeding the calyx. Calyx about 3 lines long, the

adnate part without prominent ribs, but with a granular surface; lobes ovate, not $\frac{1}{4}$ line long. Petals triangular, rather above 1 line. Staminodia small. Style variable in length.—*Genetyllis Meissneri*, Kipp. in Journ. Linn. Soc. i. 49.

W. Australia. Middle Mount Barren, *Drummond*, 5th Coll. n. 100, and with rather paler smaller involucres, n. 101.

6. ***D. helichrysoides***, *Benth. in Journ. Linn. Soc.* ix. 179.—Slender and erect, often under 1 ft. high. Leaves scattered, rather crowded, linear-triquetrous or semiterete, spreading, 2 to 3 lines long. Involucres narrow, nearly 1 in. long; bracts numerous, ovate-lanceolate, acute, mostly with a prominent midrib, the inner ones coloured, passing gradually into the short broad outer ones. Flowers about 4 in the head. Bracteoles very broadly orbicular. Calyx above 3 lines long, the adnate part without prominent ribs, but the surface granular; lobes broad, very obtuse, thicker than in any other species, streaky, and half as long as the petals. Petals about 1 line long. Staminodia rather thick, capitate.—*Genetyllis helichrysoides*, *Meissn.* in Journ. Linn. Soc. i. 37.

W. Australia. Between Moore and Murchison rivers, *Drummond*, 6th Coll. n. 35.

7. ***D. œderoides***, *Benth. in Journ. Linn. Soc.* ix. 179.—Low and much branched. Leaves scattered, crowded, linear-triquetrous or semiterete, spreading, 2 to 3 lines long. Involucres ovoid, nearly 1 in. long, with numerous linear or linear-lanceolate, imbricate bracts, the outer ones short and entire like the stem-leaves, passing gradually into the inner long coloured ones, which are elegantly ciliate with rather long hairs. Flowers numerous, on a flat receptacle of 4 or 5 lines diameter. Bracteoles linear, ciliate. Calyx nearly 3 lines long, the adnate part obtusely 5-angled; lobes very small. Petals at least $1\frac{1}{2}$ lines long. Staminodia slender.—*Genetyllis œderoides*, *Turcz.* in Bull. Mosc. 1849, ii. 18.

W. Australia. King George's Sound, *McLean*; Southern districts? *Drummond*, 4th Coll. n. 41.

8. ***D. virescens***, *Benth. in Journ. Linn. Soc.* ix. 179.—A decumbent shrub, the bark of the young branches rather thick and white. Leaves scattered, crowded, linear, semiterete or triquetrous, obtuse, mostly 3 to 4 lines long. Flower-heads dense, hemispherical, often above 1 in. diameter. Involucral bracts numerous, but not exceeding the flowers, lanceolate or ovate-lanceolate, scarcely coloured, the inner ones narrower and shorter. Flowers numerous, each on an exceedingly short thick turbinate pedicel, but the broad flat receptacle not otherwise divided. Bracteoles ovate, shorter than the flowers. Calyx about 4 lines long, the tube glandular and obscurely 5-ribbed; lobes ovate, scarious, about one-fourth the length of the petals. Petals nearly 2 lines long, obtuse. Staminodia slightly clavate.—*Genetyllis virescens*, *Meissn.* in Journ. Linn. Soc. i. 38.

W. Australia. Between Moore and Murchison rivers, *Drummond*, 6th Coll. n. 37; Port Gregory, *Oldfield*.

9. ***D. Oldfieldii***, *Benth. in Journ. Linn. Soc.* ix. 180.—Erect and bushy, attaining 3 to 4 ft. Leaves scattered, crowded, oblong, obtuse,



scarcely above 2 lines long, the margins recurved, and shortly ciliate-denticulate. Flower-heads dense, hemispherical. Involucral bracts numerous, not exceeding the flowers, imbricate but squarrose, ovate, ciliate, more or less coloured. Flowers 10 to 12 or more. Bracteoles narrow. Calyx fully 3 lines long, the adnate part not ribbed, granular at the base, and separated from the smooth free part by 2 or 3 rings of prominent glandular papillæ; lobes very small and scale-like. Petals ovate, nearly $1\frac{1}{2}$ lines long. Staminodia lanceolate.

W. Australia. Murchison river, *Oldfield*. Nearly allied to *D. purpurea*, but differs in its ciliate leaves, larger flowers, shorter bracts, fewer rings to the calyx, etc.

10. **D. purpurea**, *Benth. in Journ. Linn. Soc.* ix. 180.—Erect and much branched. Leaves scattered, crowded, and almost imbricate, linear, obtuse, 1 to 2 lines long, convex underneath, flat or concave above, the edges entire, or very minutely denticulate-ciliate. Flowers numerous, in dense hemispherical heads. Involucral bracts numerous, more or less coloured, imbricate, but somewhat spreading, rather longer than the flowers, the outer ones ovate, passing into the inner obovate or spatulate ones. Bracteoles rather narrow. Calyx about 2 lines long, the adnate part 5-ribbed at the base, the upper half encircled by 5 or 6 rings of glandular papillæ, the free part smooth; lobes very small and scale-like. Petals about 1 line long. Staminodia filiform or slightly clavate.—*Polyzone purpurea*, Endl. in *Ann. Wien. Mus.* ii. 191; *Genetyllis purpurea*, Schau. *Myrt. Xeroc.* 27. t. 2 B.

W. Australia. In the interior, *J. S. Roe (Herb. Wien. Mus.)*

11. **D. citriodora**, *Benth. in Journ. Linn. Soc.* ix. 180.—A diffuse shrub of 1 to 2 ft., the young branches with 2 prominent angles under the leaves. Leaves nearly opposite, from narrow-oblong to almost ovate-lanceolate, obtuse, $\frac{1}{4}$ to $\frac{1}{2}$ in. long, or longer on the main branches, the margins recurved or revolute. Flowers usually 4, in small terminal heads; involucre scarcely exceeding the flowers, consisting usually of 4 outer leaf-like bracts, and 4 inner ovate ones more or less coloured. Bracteoles broad and short. Calyx about 3 lines long, the adnate part obtusely 5-angled, with occasionally an obscure ring of glandular papillæ at the base of the smooth free part; lobes ovate, about half as long as the petals. Staminodia spatulate.—*Genetyllis citriodora*, Endl. in *Hueg. Enum.* 47; Schau. *Myrt. Xeroc.* 31. t. 2 C, and in *Pl. Preiss.* i. 97; *Hedavoma latifolium*, Lindl. *Swan Riv. App.* 7. t. 2 B; *Genetyllis pimeleoides*, F. Muell. *Fragm.* ii. 169.

W. Australia. Swan River to King George's Sound, and eastward to Cape Riche, *Baudin's Expedition*; *Huegel*; *Drummond*, 1st *Coll. n.* 148; *Preiss*, n. 2014, and others.

12. **D. thymoides**, *Benth. in Journ. Linn. Soc.* ix. 180. Low, diffuse, slender, and much branched. Leaves mostly opposite, linear or lanceolate, obtuse, 3 to 4 lines long, the margins revolute, the upper and floral ones sometimes longer. Flowers sessile, 4 to 8 together in terminal heads, the outer bracts or floral leaves sometimes slightly exceeding them but not coloured; inner bracts (within the head) very small and narrow. Bracteoles very broad, much shorter than the flowers, and falling away very early. Calyx rather slender, 2 to 3 lines long, strongly 5-ribbed, otherwise smooth,

lobes narrow-ovate, scarcely $\frac{1}{3}$ the length of the petals. Petals about 1 line long, rather narrow, concave, with a deep-coloured spot at the tip. Staminiodia linear-lanceolate, bordered by 3 to 5 prominent tubercular glands. Style bearded towards the end as in the other species, but the hairs very deciduous.—*Hedaroma thymoides*, Lindl. Swan Riv. App. 7; *Genetyllis thymoides*, Schau. Myrt. Xeroc. 33; *Darwinia brevistyla*, Turcz. in Bull. Mosc. 1847, i. 155.

W. Australia. Swan River, Drummond, 1st Coll., also n. 53 and 140, 3rd Coll. n. 23, 4th Coll. n. 42.

13. **D. taxifolia**, A. Cunn. in *Field N. S. Wales*, 352. A straggling or decumbent shrub, or when luxuriant almost arborescent. Leaves mostly opposite, linear-falcate, triquetrous or laterally compressed, acute, $\frac{1}{4}$ to $\frac{1}{2}$ in., or in very luxuriant specimens all above $\frac{1}{2}$ in. long, almost petiolate, the floral ones not enlarged. Flowers 2 to 4 together at the ends of the branchlets, not exceeding the leaves. Bracteoles broad, acute, as long as the flowers. Calyx $2\frac{1}{2}$ lines long, prominently 5-ribbed, the adnate part slightly rugose between the ribs; lobes very small and scale-like. Petals ovate, $\frac{1}{2}$ line long or rather more. Staminiodia very small and subulate.—*D. laxifolia*, Schau. Myrt. Xeroc. 38.

N. S. Wales. Rocky declivities of the Blue Mountains, A. Cunningham. Moist sandy heaths between Sydney and South Head, R. Brown.

Var. *grandiflora*. Calyx fully 3 lines long, the lobes nearly half as long as the petals.—Illawarra, Herb. F. Mueller.

Schauer was mistaken in supposing that A. Cunningham's specific name of *taxifolia* was a misprint; it was intended to allude to the peculiar bifarious arrangement of the leaves in luxuriant branches.

14. **D. vestita**, Benth. in *Journ. Linn. Soc.* ix. 180. Erect, bushy, with short and rigid or long and virgate branches. Leaves scattered, mostly crowded, from obovate or oblong to almost linear, 1 to 2 lines long, almost imbricate on the smaller branches, concave above, strongly keeled underneath. Flowers on pedicels of about 1 line, in globular terminal umbels or heads, becoming sometimes lateral verticils by the elongation of the central shoot, the floral leaves like the stem ones or rather broader. Bracteoles nearly as long as the calyx, but very deciduous. Calyx not 2 lines long, the adnate part 5-ribbed, otherwise smooth, the free part obscurely 10-ribbed; lobes very small and scale-like. Petals white, above 1 line long. Staminiodia subulate, rather longer than the filaments. Style not twice as long as the petals.—*Genetyllis vestita*, Endl. in Hueg. Enum. 47; Schau. Myrt. Xeroc. 30; and in Pl. Preiss. i. 96.

W. Australia. King George's Sound, Baxter, Huegel, and others; eastward to Cape le Grand, Maxwell; and thence to Swan River, Preiss. n. 433; Drummond, 4th Coll. n. 161, 5th Coll. n. 103; Cape Naturaliste, Oldfield.

15. **D. pauciflora**, Benth. in *Journ. Linn. Soc.* ix. 180. Apparently tall and bushy, with numerous short branches. Leaves scattered, erect or spreading, obovate or oblong, very obtuse, 1 to 2 lines long, imbricate on the smaller branches, concave above, convex underneath, but scarcely keeled, usually glaucous, entire or slightly serrulate-ciliate; the floral ones similar. Flowers shortly pedicellate in the upper axils, either forming a terminal head of 3 to



Desmodium siliquoides Vol. III. p. 13.

6, or more frequently lateral by the elongation of the central shoot. Bracteoles very broad, shorter than the calyx, and very deciduous. Calyx-tube broadly turbinate, nearly 2 lines long, the adnate part 5-ribbed, otherwise smooth; lobes very minute or scarcely conspicuous. Petals white, ovate, nearly as long as the calyx-tube, slightly serrulate. Staminodia slender. Style shortly exceeding the petals, bearded under the broadly-capitate stigma.

W. Australia. Between Moore and Murchison rivers, *Drummond*, 6th Coll. n. 38; S. Hunt River, *Oldfield*. Nearly allied to *D. vestita*, but the few flowers, broad calyx, and large petals give it a very different aspect.

16. *D. diosmoides*, Benth. in Journ. Linn. Soc. ix. 180. An erect bushy shrub of 2 or 3 feet, with the aspect of a heath or a *Diosma*. Leaves scattered, crowded, linear, semiterete or triquetrous, thick or slender, obtuse, 1 to 2 or rarely 3 lines long. Flowers numerous, in compact terminal globular heads of 3 or 4 lines diameter, the floral leaves on the outside not different from the stem ones. Bracteoles oblong-lanceolate, shorter than the calyx. Calyx about $1\frac{1}{2}$ lines long, the adnate part obscurely 5-ribbed, and covered nearly from the base by glandular papillæ more or less distinctly arranged in 6 to 8 prominent parallel rings, the free part short and smooth; lobes very small and scale-like. Petals white, about $\frac{3}{4}$ line long. Staminodia slender, about as long as the filaments. Style exserted.—*Genetyllis diosmoides*, DC. Prod. iii. 209, and Mem. Myrt. t. 2 (incorrect as to the stamens); Schau. Myrt. Xeroc. 28. t. 2 A (the staminodia too broad), and in Pl. Preiss. i. 96; *G. Drummondii*, Turcz. in Bull. Mosc. 1847, i. 155 (a short-leaved form).

W. Australia. Common in rocky places and on the seacoast at King George's Sound and adjoining districts, *R. Brown* and others, *Drummond*, 4th Coll. n. 22, 5th Coll. suppl. n. 21; *Preiss*, n. 223.

Genetyllis affinis, Turcz. in Bull. Mosc. 1847. i. 155 is said to differ in the calyx quite smooth, but in *Drummond's* specimens, 4th Coll. n. 21, quoted by him, it has certainly the parallel rings of the species.

17. *D. fascicularis*, Rudge in Trans. Linn. Soc. xi. 299. t. 22. An erect much-branched heath-like shrub. Leaves scattered, often crowded, linear, slender, semiterete or obtusely triquetrous, subulate-pointed, mostly 4 to 5 lines long, shortly petiolate, the floral ones not different or slightly longer. Flowers about 6 to 12 together in terminal heads within the last leaves. Bracteoles narrow and short. Calyx slender, not 3 lines long, the adnate part prominently 5-ribbed, otherwise smooth; lobes very small and scale-like. Petals broad, about $\frac{1}{2}$ line long. Staminodia short and filiform. Style long and slender.—*Schau. Myrt. Xeroc. 36. t. 2 D.*

N. S. Wales. Port Jackson, *R. Brown* and others.

Cryptostemon ericaus, F. Muell., published by Miquel in Nederl. Kruidk. Arch. iv. 115, from F. Mueller's description taken from a garden specimen of a N. S. Wales plant of which no specimen is preserved, is most probably *Darwinia fascicularis*, with which the description agrees in every respect except that the staminodia are not mentioned. These, however, may well have been overlooked. *Francisia*, Endl. Gen. Pl. 1226, proves from the investigation of Dr. Fenzl to have been established on a drawing of Ferd. Bauer's, n. 1226, representing *D. fascicularis*, the stamens by some error, possibly of the press, being described as 20 instead of 10.

SECTION II. SCHUERMANNIA, *F. Muell. Fragm.* iv. 57. (*Schnermannia*, probably from a typographical error.)—Calyx-lobes as long as the petals or longer. Flowers in the axils of the upper leaves, few, or forming compound heads or corymbs, or rarely simple heads.

18. **D. pinifolia**, *Benth. in Journ. Linn. Soc.* ix. 181. Erect and much-branched, closely resembling *D. fascicularis* in habit, foliage, and inflorescence, but with very different calyx and staminodia. Leaves scattered, crowded, linear, slender, semiterete or triquetrous, acute or mucronate, often $\frac{1}{2}$ in. long, attenuate at the base but not petiolate. Flowers in dense terminal heads, the outer floral leaves like those of the stem, the bracts within the heads shorter, broader, and thin. Bracteoles ovate-oblong or spatulate, shorter than the flowers. Calyx slender, nearly 3 lines long, the adnate part 5-ribbed, the free part broader and 10-ribbed; lobes broadly ovate, about the same length and consistence as the broad obtuse petals. Staminodia broadly obtuse, more or less outside the stamens.—*Hedaroma pinifolium*, Lindl. Swan Riv. App. 7; *Genetyllis pinifolia*, Schau. Myrt. Xeroc. 34.

W. Australia. Swan River, *Mylne*.

19. **D. sanguinea**, *Benth. in Journ. Linn. Soc.* ix. 181. Apparently diffuse. Leaves opposite, often crowded, linear-oblong or lanceolate, 2 to 3 lines long, with rather thin recurved ciliolate margins. Flowers crowded in a dense terminal hemispherical compound head of $\frac{1}{2}$ to 1 in. diameter, consisting of several partial heads of about 4 flowers each. Bracts or floral leaves ovate, usually coloured, but shorter than the flowers. Bracteoles very broad, mucronulate, shorter than the calyx. Calyx about 3 lines long, the adnate part prominently 5-ribbed and granular-tuberculate between the ribs; lobes cordate-ovate, nearly 1 line long. Petals ovate, about as long as the calyx-lobes. Staminodia lanceolate.—*Genetyllis sanguinea*, Meissn. in *Journ. Linn. Soc.* i. 38.

W. Australia. Between Moore and Murchison rivers, *Drummond*, 8th Coll. n. 36.

20 **D. micropetala**, *Benth. in Journ. Linn. Soc.* ix. 181. Erect and bushy, with slender branches. Leaves opposite or alternate, not crowded, linear, triquetrous, obtuse, 1 or rarely 2 lines long, the floral ones rather larger but scarcely otherwise different. Flowers in small terminal compound almost globular heads, 2 to 4 together in each partial head. Bracteoles nearly as long as the flowers. Calyx about $1\frac{1}{2}$ lines long, the adnate part of the tube 5-ribbed, otherwise smooth; lobes petal-like, and as long as or rather longer than the petals. Staminodia very minute. Style not twice as long as the petals. Ovules 4.—*Genetyllis micropetala*, *F. Muell. Fragm.* i. 12.

S. Australia. Kangaroo Island, *Bannier*.

21. **D. Schuermanni**, *Benth. in Journ. Linn. Soc.* ix. 181. Procumbent and much branched. Leaves opposite, linear, triquetrous, shortly acute or mucronulate, $\frac{1}{4}$ to $\frac{1}{2}$ in. long, the floral ones not different. Flowers solitary in the upper axils of short branchlets, on very short pedicels. Bracteoles broad, about as long as the calyx. Calyx nearly 4 lines long, the adnate part prominently and obtusely 5-ribbed, otherwise smooth; lobes lanceolate, petal-like, about the length of the ovate petals. Staminodia subulate.



F. Schonfeld del. & lith.

F. Mueller direct.

De Gischy & Leigh imp.

Chamaelaucium thomasi F.M.

Style long. Ovules 2.—*Schuermannia homoranthoides*, F. Muell. in *Linnaea*, xxv. 387; *Genetyllis Schuermanni*, F. Muell. *Fragm.* i. 12.

S. Australia. Near Boston Point, Port Lincoln, *Wilhelmi*.

22. **D. verticordina**, *Benth. in Journ. Linn. Soc.* ix. 181. Erect and densely bushy. Leaves opposite, linear, semiterete or triquetrous, mostly about 3 lines long. Flowers in the upper axils of the short branchlets forming a dense flat-topped leafy corymb, the pedicels 1 to 2 lines long. Calyx-tube hemispherical, $1\frac{1}{2}$ lines diameter, softly pubescent, more villous at the base with a dense ring of white hairs as in many species of *Verticordia*; lobes ovate, scarious, nearly 2 lines long, very shortly and irregularly denticulate-ciliate. Petals ovate-lanceolate, rather shorter than the calyx-lobes entire, scarious with a broad dark-coloured central line. Stamens united for nearly 1 line above the calyx-tube; staminodia lanceolate-subulate, forming a distinct outer series. Style very long. Ovules 2.—*Chamelaucium verticordinum*, F. Muell. *Fragm.* iv. 57; *Verticordia integrise-pala*, F. Muell. *Herb.*

W. Australia. Rocks near Cape la Grand, *Maxwell*, to the eastward of King George's Sound, *Barter*.

Although this plant has, as observed by F. Mueller, the calyx-tube, and some other characters of *Verticordia*, yet, on the whole, he appears to have referred it more correctly to his section *Schuermannia*, at first proposed as a distinct genus, then reduced to *Genetyllis*, and afterwards transferred to *Chamelaucium*. The anthers and ovary are those of *Darwinia* (*Genetyllis*), and not of *Chamelaucium*, and the affinity with the former genus is still further indicated by the remarkably long style which is common in *Darwinia*, rare in *Verticordia*, and unknown in *Chamelaucium*.

23. **D. Thomasii**, *Benth. in Journ. Linn. Soc.* ix. 181. Slender and somewhat glaucous. Leaves opposite, obovate-falcate, very oblique, the midrib near the shorter edge, and terminating in a short recurved point or acute angle, the floral ones not different. Flowers large, pink, on pedicels of 3 lines or more in the upper axils. Bracteoles persistent, almost petal-like, obtuse, with a sharp point about 3 lines long. Calyx-tube rather narrow, about as long as the bracteoles; lobes petal-like, obovate-oblong, about 2 lines long, minutely denticulate. Petals orbicular, entire, about half as long as the calyx-lobes. Stamens shorter than the petals; anthers globular, the cells opening in oblong pores; staminodia rather shorter, adnate at the base to the filaments of the petaline stamens. Style twice as long as the calyx, shortly bearded below the stigma. Ovules 6.—*Chamelaucium Thomasii*, F. Muell. *Fragm.* iv. 137. t. 30.

Queensland. Sandstone country, head of Cape River, *Bowman*.

3. HOMORANTHUS, A. Cunn.

Calyx-tube narrow, the adnate part 5-ribbed; lobes 5, subulate, longer than the petals. Petals 5, entire. Stamens 10, alternating with as many staminodia, and united with them very shortly at the base in a single ring. Anthers globular, opening in 2 minute pores near the scarcely prominent connective. Ovary 1-celled, with about 4 ovules inserted on a short basal placenta. Style exserted, bearded towards the end; stigma terminal, minute.

Fruit . . .—Shrub. Leaves opposite. Flowers 2 to 4 together at the ends of the branches.

The genus is limited to a single species, only differing from *Darwinia* in the subulate calyx-lobes.

1. **H. virgatus**, *A. Cunn. in Schau. Myrt. Xeroc.* 41. t. 3 A. Spreading or diffuse, closely resembling *Darwinia taxifolia* in aspect. Leaves linear, slender, triquetrous, often falcate, obtuse or shortly acute, $\frac{1}{4}$ to $\frac{1}{2}$ in. long, the floral ones not different. Flowers 2 to 4 together at the ends of the branches, nearly sessile. Bracteoles broad, concave, keeled, scarious, enclosing the young bud but falling off long before the flower expands. Calyx-tube $2\frac{1}{2}$ lines long, prominently 5-ribbed, and the adnate part somewhat rugose between the ribs. Petals broad, about $\frac{3}{4}$ line long. Staminodia filiform. Ovules in all the flowers examined 4, according to Schauer 4 to 8. Style not very long.—*H. flavescens*, *A. Cunn. in Schau. l. c.* 40. t. 3 B.

Queensland. Islands of Moreton Bay, *A. Cunningham, Fraser, F. Mueller.*

N. S. Wales. Forest lands skirting Liverpool Plains and Mohe's Rivulet below Wellington Valley, *A. Cunningham*; Cape Brown, *C. Moore.*

I can discover no difference whatever between the two supposed species.

4. **VERTICORDIA**, DC.

(*Chrysorrhoe*, *Lindl.*)

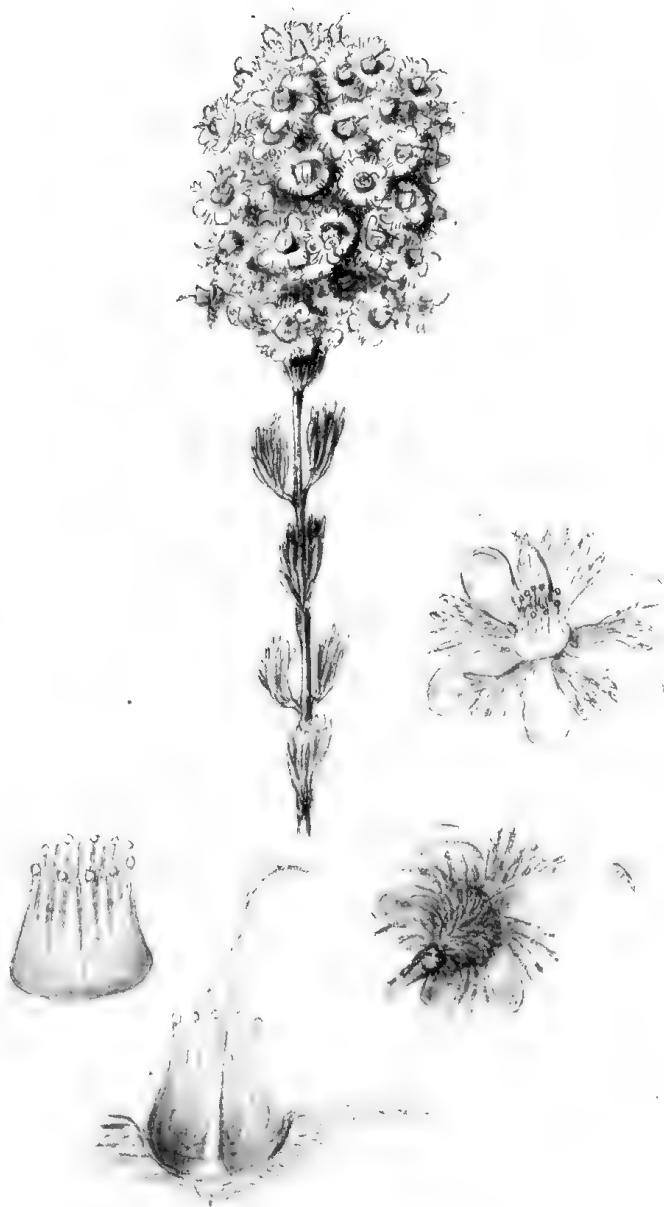
Calyx-tube hemispherical turbinate or rarely cylindrical, the adnate part 5 or 10-ribbed, or smooth; lobes 5, spreading, deeply divided into digitate pectinate or ciliate lobes, or into numerous long, simple, hair-like lobes or cilia, with, in some species, accessory lobes, alternating with and outside the principal ones, scarious, reflexed on the tube, with long cilia turned up again from the base of the calyx; occasionally also 5 herbaceous appendages reflexed on the tube under the primary lobes. Petals 5, entire fringed or digitate. Stamens 10, alternating with as many staminodia, more or less united at the base in a ring or broad tube in a single row, or the staminodia when broad forming an outer series; anthers either globular and 2-porose, as in *Darwinia*, or with 2 parallel cells opening in longitudinal slits, as in *Chamelaucium*. Ovary 1-celled, either with 2 or 4 ovules on a small excentric placenta, or about 8 or 10 on a more or less peltate placenta. Style included or shortly exerted, rarely elongated; stigma terminal, small, or capitate or peltate. Fruit formed by the hardened base of the slightly-enlarged persistent calyx. Seed usually solitary, testa very thin; embryo consisting of a homogeneous mass of the shape of the seed, with a slender neck lying along the flattened apex, entire or perhaps divided at the point into two minute cotyledons.—Shrubs with usually a heath-like or *Diosma*-like aspect, glabrous except the cilia on the edges of the leaves. Leaves small, opposite or rarely (in *V. serrata*) alternate, entire. Flowers usually pedicellate in the upper axils, forming often broad terminal leafy corymbs, or simple leafy spikes or racemes below the ends of the branches; the elegantly plumose radiating calyx-lobes often coloured, the floral leaves resembling the upper stem-leaves, but in some species all the upper leaves short, broad, and concave, whilst the lower ones are slender and triquetrous. Bracteoles thin and scarious, folded over each other or enclosing



1/ 100000







Portulacaria
capensis

Apr. June 17

the flower-bud, but very deciduous, or rarely connate at the base and persistent, the keel often terminating in a point at or below the apex, very variable in length even in the same species.

The genus is limited to Australia. It is characterized by the calyx. In other respects the first section has the characters of *Darwinia*, the second those of *Chamelaucium*. In the few seeds which I have seen ripe I could find no notch in the slender end of the embryo, and it is therefore still uncertain whether that or the thick homogeneous mass is the radicular end.

SECTION 1. Euverticordia.—*Anthers nearly globular, opening in 2 almost dorsal pores; connective either small and inconspicuous or more or less thickened or produced into a concave or hooded appendage, concealing the pores. Ovules 2 or rarely 4 or 1, on a small or stalk-like placenta.*

A. *Calyx-tube narrow, 5-ribbed, glabrous; lobes 5, erect; with 3 to 5 long simple hair-like divisions.*

Flowers small, in umbel-like corymbs, the floral leaves reduced to

small bracts 1. *V. Wilhelmsii*.

B. *Calyx-tube hemispherical, smooth or ribbed, pubescent or with a tuft of spreading hairs round the base; primary lobes 5, spreading, deeply divided into 5, 7, or rarely 9 linear or subulate pectinate-ciliate digitate lobes. Petals entire denticulate or ciliate. Connective small.*

Calyx-lobes contracted into a short broad claw, the tube hirsute with long hairs at the base, glabrous or pubescent above.

Flowers white or pink. Leaves rather slender 2. *V. densiflora*.

Flowers yellow. Leaves very short and thick 3. *V. stelluligera*.

Calyx-lobes digitate from the base.

No staminodia. Flowers very small 4. *V. minutiflora*.

Staminodia linear.

Divisions of the calyx-lobes flat and scarious, pectinate-pinnatifid; tube pubescent all over.

Flowers white or pink. Style scarcely exerted 5. *V. Fontanesii*.

Flowers yellow. Style very long 6. *V. helichrysanthia*.

Divisions of the calyx-lobes subulate, the pectinate cilia long.

Calyx-tube hirsute only with a ring of hairs at the base, otherwise glabrous. Flowers very numerous, in broad terminal leafy corymbs, often pedunculate.

Leaves small, obovate or oblong 7. *V. Brownii*.

Leaves linear, triquetrous, slender 17. *V. polytricha*.

Calyx-tube hirsute all over. Flowers very small in the upper axils of the densely-tufted branches. Leaves linear, triquetrous 8. *V. conferta*.

Staminodia lanceolate, petal-like, fringed 9. *V. Harveyi*.

C. *Calyx-tube turbinate or hemispherical, glabrous, primary lobes 5, spreading, deeply and digitately divided into 5, 7, or rarely 9 linear or subulate pectinate-ciliate lobes. Connective thickened and usually produced into a concave appendage. Flowers yellow.*

Petals deeply fringed. Staminodia fringed. Corymbs small, few-flowered. Bracteoles persistent 10. *V. fimbriatipis*.

Petals rigid, denticulate. Staminodia entire. Corymbs broad, many-flowered. Bracteoles very deciduous.

Leaves serrulate-ciliate. Staminodia broad. Connective-appendage short 11. *V. serrata*.

Leaves entire. Staminodia subulate. Connective-appendage large and hood-shaped 12. *V. nitens*.

Petals digitately divided into 5, 7, or 9 rigid subulate lobes. Staminodia oblong or lanceolate. Bracteoles persistent.

Connective-appendage large, with 2 horns turned down over the cells. Staminodia variously toothed or fringed . . . 13. *V. grandiflora*.

Connective-appendage short, not horned. Staminodia entire.

Stem-leaves linear-triquetrous, rigid, often above $\frac{1}{2}$ in. long.

Flowers few, large . . . 14. *V. chrysantha*.

Stem-leaves slender, those of the corymb often small and

ovate. Flowers numerous, small . . . 15. *V. Preissii*.

Staminodia ciliate or fringed . . . 16. *V. acerosa*.

D. *Calyx-tube with a ring of long hairs at the base, otherwise glabrous, pubescent, or shortly villous; primary lobes 5, spreading or partially reflexed; divided into numerous subulate or hair-like lobes or long cilia. Connective small.*

Divisions or cilia of the calyx-lobes all horizontally spreading.

Flowers very small.

Stems erect. Flowers in broad dense leafy corymbs, often

pedunculate. Petals slightly ciliate . . . 17. *V. polytricha*.

Stems procumbent. Petals entire . . . 18. *V. demissa*.

Lateral divisions or cilia of the calyx-lobes outermost in imbrication, more or less reflexed on the calyx-tube (but without real accessory reflexed lobes).

Stems diffuse or prostrate. Style very long.

Petals entire. Style glabrous . . . 19. *V. humilis*.

Petals ciliate. Style bearded at the top with long purple hairs 20. *V. penicillaris*.

Stems erect. Flowers corymbose. Petals fringed with fine cilia.

Staminodia entire. Stigma capitate . . . 21. *V. multiflora*.

Staminodia fringed. Stigma broadly peltate . . . 22. *V. Huegelii*.

E. *Calyx with 5 spreading primary lobes, either digitate with pectinate divisions or divided into very numerous hair-like lobes, and 5 accessory lobes, alternating with the primary ones on the outside, very thin and scarious, closely reflexed on the tube, divided into numerous fine cilia, and turned up again from the base of the tube. Connective small. Lower leaves laterally compressed or triquetrous.*

Staminodia fringed or ciliate.

Flowers rather large. Petals fringed . . . 23. *V. insignis*.

Flowers rather small. Petals entire . . . 24. *V. habrantha*.

Staminodia subulate, entire.

Flowers rather large, numerous, in a broad corymb. Hair-like

divisions of the calyx exceedingly numerous. Petals fringed with numerous long cilia. Style straight, glabrous . . . 25. *V. monadelphæ*.

Flowers few, in small corymbs, or in the upper axils. Divisions

of the spreading calyx-lobes few, ciliate. Petals fringed at

the end with a few irregular lobes. Style bent and bearded

towards the end . . . 26. *V. Lehmanni*.

SECTION 2. **Catocalypta**.—Anthers ovoid or oblong, with 2 parallel cells, adnate to a more or less thickened connective, and opening in longitudinal slits. Ovules several, usually 8 or 10, in 2 rows, on an obliquely peltate, oblong or rarely stalk-like placenta.

A. *Calyx-lobes 5, spreading, without reflexed accessory lobes or herbaceous appendages. Racemes short, mostly terminal, almost corymbose. Leaves linear-triquetrous or semiterete.*

Leaves mostly $\frac{1}{2}$ in. long, or more. Lateral cilia of the calyx-lobes

reflexed on the tube. Petals fringed or denticulate, shorter than

the calyx-segments . . . 27. *V. Cunninghamii*.

Leaves mostly under $\frac{1}{2}$ in. Calyx-lobes without reflexed divisions or

cilia. Petals entire, longer than the calyx-lobes . . . 28. *V. picta*.

Leaves mostly 1 to 2 lines long. Lateral cilia of the calyx-lobes reflexed on the tube . . . 29. *V. pennigera*.

B. *Calyx-lobes 5, spreading, without reflexed accessory lobes, but with 5 herbaceous*

reflexed appendages on the tube under the segments. Flowers usually forming oblong racemes or spikes below the ends of the branches. Leaves small.

- Leaves linear or lanceolate, serrulate. Calyx-appendages shorter than broad, sometimes scarcely conspicuous 29. *V. pennaigera*.
 Leaves obovate or oblong, not 2 lines long. Calyx-appendages ovate, usually half as long as the tube.
 Leaves spreading or loosely imbricate 30. *V. Drummondii*.
 Leaves closely appressed and imbricate 31. *V. pholidophylla*.

C. Calyx-lobes 5, spreading, with subulate plumose divisions, 5 accessory lobes outside and alternating with the primary ones, thin and transparent, reflexed on the tube, fringed or densely ciliate and turned up again from the base of the tube, and 5 herbaceous reflexed appendages on the tube under the spreading lobes. Flowers forming racemes or spikes below the ends of the branches or rarely short terminal racemes. Leaves obovate or orbicular, usually glaucous.

- Leaves mostly about 1 line long, closely imbricate.
 Reflexed accessory calyx-lobes ovate-lanceolate, fringed with long cilia. Petals with long cilia 32. *V. spicata*.
 Reflexed accessory calyx-lobes orbicular, shortly fringed. Petals entire or scarcely denticulate 33. *V. lepidophylla*.
 Leaves obovate, mostly keeled, 2 to 3 lines long. Herbaceous calyx-appendages very short and broad. Flowers white or pink, in short racemes 34. *V. ovalifolia*.
 Leaves obovate or orbicular, 2 to 3 lines long. Herbaceous calyx-appendages half as long as the tube. Flowers yellow, in long racemes below the ends of the branches 35. *V. chrysostachya*.
 Leaves orbicular, 3 to 4 lines long. Flowers large, red or blue.
 Plumose divisions of the spreading calyx-lobes white and scarious. Petals fringed with long cilia 36. *V. oculata*.
 Plumose divisions of the spreading calyx-lobes hair-like and purple or red. Petals bordered by short teeth 37. *V. grandis*.

SECTION 1. EUVERTICORDIA. Anthers nearly globular, opening in two almost dorsal pores; connective either small and inconspicuous, or more or less thickened, or produced into a concave or hooded appendage concealing the pores. Ovules 2 or rarely 4 or 1, on a small or stalk-like placenta.

This section, with the anthers and ovary of *Darwinia* and *Homoranthus*, is only distinguished from them by the calyx.

A. Calyx-tube narrow, 5-ribbed, glabrous; primary lobes 5, erect, each divided into 3 to 5 long, simple, hair-like lobes.

This single species differs from all others of the genus in inflorescence and the shape of the calyx, and in its lobes forms an approach to those of *Homoranthus*.

1. **V. *Wilhelmii***, F. Muell. in Trans. Vict. Inst. 122. Erect and bushy. Leaves linear, semiterete or triquetrous, slender, obtuse or mucronulate, 2 to 3 lines long, crowded on the smaller shoots. Flowers small, in small dense terminal corymbs on very short pedicels, the floral leaves in the corymb all reduced to small bracts. Bractcoles very thin and deciduous. Calyx-tube narrow, above 1 line long, 5-ribbed, glandular-rugose between the ribs, lobes 5, erect, thin, short, and broad, terminating in 3 or 5 long hair-like divisions, the middle ones exceeding the petals. Petals ovate-oblong, entire, about 1 line long. Stamens very short with small globular anthers, the connective not prominent. Staminodia minute, subulate. Style exerted,

slender, bearded towards the end. Ovules 2 or 4, one of them speedily enlarging.

S. Australia. Boston Point, Port Lincoln, *Wilhelmi*.

B. Calyx-tube hemispherical, smooth or ribbed, pubescent or with a tuft of spreading hairs round the base; primary lobes 5, spreading, deeply divided into 5, 7, or rarely 9 linear or subulate pectinate-ciliate digitate lobes. Petals entire denticulate or ciliate. Connective small.

This group has the calyx-tube of D. with the segments of C.

2. **V. densiflora**, *Lindl. Swan Riv. App.* 6. Erect and bushy, attaining 2 or 3 ft. Leaves linear, semiterete or triquetrous, slender, $\frac{1}{4}$ to $\frac{1}{2}$ in. long, crowded on the short side-branches so as to form axillary tufts as in *V. Fontanesii*, but usually more remote on the main stems, the floral ones in the corymb often lanceolate. Flowers white or pink, on pedicels rarely exceeding 2 lines, in dense terminal leafy corymbs, usually pedunculate. Calyx-tube hemispherical, hirsute with long hairs at the base only, primary lobes 5, spreading to 4 or 5 lines in diameter, each one contracted at the base into a broad ciliate claw, and divided to below the middle into 3 or 5 pectinate-ciliate digitate lobes. Petals short, nearly orbicular, fringed with numerous cilia. Stamens very shortly united; anthers globular, 2-porose; connective small. Staminiodia lanceolate-subulate, entire, slightly glandular. Ovules 2 (or 1?). Style exserted, bearded towards the end.—*Schau. Myrt. Xeroc.* 50, and in *Pl. Preiss.* i. 98.

W. Australia. Swan River, *Drummond, 1st Coll. n.* 174; *Preiss, n.* 160; Blackwood River, *Oldfield*; Salt River and south coast, *Maxwell*.

V. cespitosa, *Turez. in Bull. Mosc.* 1847, i. 157, described from Gilbert's specimens, n. 330, which I have not seen, appears, from the character given, to be the same as *V. densiflora*.

3. **V. stelluligera**, *Meissn. in Journ. Linn. Soc.* i. 38. Very near *V. densiflora*, but the broader leaves and small corymbs of yellow flowers give it a very different aspect. Branches divaricate, slender. Leaves from linear-triquetrous to oblong and concave, very obtuse, rarely 3 lines long. Flowers small, yellow, in numerous small but dense leafy corymbs, often pedunculate. Calyx-tube hemispherical, hirsute with long hairs at the base only, contracted at the top; primary lobes 5, scarcely spreading to 3 lines diameter, each contracted into a short broad claw and divided into 3 or 5 linear flat but pectinate digitate lobes. Petals ovate, shorter than the calyx-lobes, fringed with fine cilia. Stamens and lanceolate-subulate staminiodia of *V. densiflora*. Style exserted, bearded towards the end. Ovule 1.

W. Australia. Between Moore and Murchison rivers, *Drummond, 6th Coll. n.* 50.

4. **V. minutiflora**, *F. Muell. Fragm.* iv. 58. Erect and bushy, with the habit of *V. Fontanesii*, but more slender, with smaller finer leaves, much smaller flowers, and no staminiodia. Leaves linear, semiterete or triquetrous, slender, obtuse, 2 to 3 lines long, crowded on the short lateral branches. Flowers very small on very short pedicels, in small terminal leafy corymbs, or in the upper axils. Bracteoles ovate, more persistent than in the allied species. Calyx-tube ovoid-globular, hirsute, scarcely above $\frac{1}{2}$ line long; primary lobes 5; spreading scarcely to a diameter of 2 lines, digitately

divided from near the base into 3 or 5 white scarious lobes bordered by a few long scarious cilia. Petals ovate, entire, as long as the calyx-lobes. Staminal disk truncate, with 10 short equidistant stamens, and no staminodia; anthers globular, 2-porose, the connective slightly prominent. Ovules 2 (or 1?). Style filiform, slightly bearded towards the end.

W. Australia. Towards the Great Bight, *Maxwell*.

5. **V. Fontanesii**, *DC. Prod.* iii. 209. Erect and bushy, attaining 3 or 4 ft. Leaves linear, semiterete or triquetrous, usually slender, obtuse or mucronate, 3 to 4 lines long, and densely crowded on the short lateral shoots, rarely looser and $\frac{1}{2}$ in. long, or short, thick, and closely decussate. Flowers white or pink, on slender pedicels, rarely above $\frac{1}{4}$ in. long, in terminal leafy corymbs or rounded dense panicles, close above the stem-leaves or shortly pedunculate. Calyx-tube hemispherical, without prominent ribs, densely and softly hirsute all over, the adnate part and ovary exceedingly short; primary lobes 5, spreading to a diameter of 3 to 4 lines in the common form, divided nearly to the base into about 5 or 7 digitate, linear, but flat and scarious lobes, pectinate-ciliate or pinnatifid, or sometimes toothed only towards the end. Petals oblong or ovate, as long as the calyx-lobes, slightly pubescent, entire or slightly ciliate towards the base. Stamens shortly united; anthers globular, 2-porose, the connective inconspicuous; staminodia oblong-linear, obtuse, glandular. Ovules 2 or 4. Style filiform, scarcely exerted, more or less bearded towards the end.—*Schau. Myrt. Xeroc.* 47, and in *Pl. Preiss.* i. 98; *Chamelaucium plumosum*, *Desf.* in *Mem. Mus. Par.* v. 42. t. 4; *Verticordia Sieberi*, *Diesing* in *Schau. Myrt. Xeroc.* 49.

W. Australia. King George's Sound and adjoining districts, *A. Cunningham* and others; *Drummond, 3rd Coll.* n. 30, *Preiss.* n. 172, 174.

Var. *grandiflora*. Calyx-tube with shorter hairs; lobes spreading to about $\frac{1}{4}$ in. diameter — *Drummond, 5th Coll.* n. 110.

Var. (?) *parviflora*. Flowers small, the petals ovate-lanceolate.—*Lucky Bay, R. Brown.*

6. **V. helichrysantha**, *F. Muell. Herb.* An erect shrub, with the habit, foliage and inflorescence of the large-flowered variety of *V. Fontanesii*, but the flowers appear to be yellow and the style much longer. Leaves linear, semiterete or triquetrous, very obtuse, 2 to 4 lines long, crowded on the smaller shoots. Flowers on pedicels as long as the leaves, in small, terminal, leafy corymbs, or in the upper axils. Calyx-tube hemispherical, scarcely ribbed, softly hirsute all over; primary lobes 5, spreading to nearly $\frac{1}{2}$ in. diameter, each one digitately divided into 5 or 7 linear, flat, scarious, pectinate-ciliate lobes. Petals ovate-oblong, entire, pubescent, as long as the calyx. Stamens and staminodia of *V. Fontanesii*. Style subulate, $\frac{3}{4}$ in. long, shortly bearded towards the end. Ovules 2.

W. Australia. Phillips Range and Cape Riche, *Maxwell*.

7. **V. Brownii**, *DC. Prod.* iii. 209. Erect, bushy, and much branched. Leaves obovate or oblong, very obtuse, keeled or triquetrous, mostly 1 to $1\frac{1}{2}$ lines long, almost imbricate and decussate on the short barren branches. Flowers small, on pedicels of 1 to 2 lines, and very numerous, in dense, broad, terminal, leafy corymbs, more or less pedunculate. Bracteoles distinct. Calyx-tube hemispherical or almost disk-shaped, contracted at the top, not

ribbed, glabrous, except a ring of spreading hairs round the base; primary lobes 5, spreading to about 3 lines diameter, deeply divided into about 7 long hair-like lobes, all pectinately fringed by long cilia chiefly below the middle. Petals shorter than the calyx-lobes, orbicular, entire or obscurely denticulate, glabrous, connivent. Stamens very shortly united in a ring; anthers globular, 2-porose, with a small connective; staminodia lanceolate-linear, glandular inside. Ovule usually 1. Style shortly exserted.—Schau. Myrt. Xeroc. 52; *Chamalaucium Brownii*, Desf. in Mem. Mus. Par. v. 271. t. 19.

W. Australia. Lucky Bay (Cape Le Grand), *R. Brown*; ranges to the eastward of King George's Sound, *Baxter, Maxwell, Drummond* n. 176, 5th Coll. n. 50.

8. **V. conferta**, *Benth.* Rigid and erect, with numerous short branches, forming apparently a low, dense, flat-topped bush in Drummond's specimens, with more of the habit of *V. Harveyi* in Maxwell's. Leaves linear, semiterete or triquetrous, obtuse, mostly 2 to 3 lines long, all densely crowded. Flowers very small, on very short pedicels in the upper axils. Calyx-tube scarcely above $\frac{1}{2}$ line long, 10-ribbed, shortly hirsute; primary lobes 5, spreading to little more than 2 lines diameter; each one deeply divided into 3 or 5 subulate, more or less pectinate-ciliate lobes, with a few simple cilia. Petals ovate, obtuse, entire, rather firm and glabrous, or scarcely pubescent. Staminal disk very broad; filaments short; anthers globose, 2-porose, with a scarcely prominent connective; staminodia subulate, slender. Ovule 1 (or 2?). Style exserted, subulate, bearded or glabrous.

W. Australia, *Drummond*, 5th Coll. n. 114; swampy places, near E. Mount Barren, *Maxwell*.

9. **V. Harveyi**, *Benth.* Erect, with slender branches, often nearly leafless below the corymbs, as in *V. densiflora* and *V. polytricha*. Leaves linear-subulate, semiterete or triquetrous, $\frac{1}{4}$ to $\frac{1}{2}$ in. long, crowded in the corymbs, and some of them exceeding the flowers. Flowers small, numerous, on pedicels rarely exceeding 1 line, in dense leafy corymbs. Calyx-tube hemispherical, obscurely ribbed, softly pubescent; primary lobes 5, spreading to about 3 lines diameter, digitately divided into about 7 subulate, pectinate-ciliate lobes. Petals ovate or broadly lanceolate, fringed with rather long cilia or rarely entire. Stamens very short; anthers globular, 2-porose, the connective slightly thickened but small. Staminodia lanceolate, petal-like and fringed, or linear-lanceolate and entire. Style shortly exserted, bent and bearded towards the end. Ovules 2.

W. Australia. Near Cape Riche, *Harvey, Maxwell*.

Var. *nudipetala*. Petals scarcely fringed. Staminodia entire.—W. Australia, *Maxwell*.

C. Calyx-tube turbinate or hemispherical, ribbed, glabrous; primary lobes 5, spreading, deeply divided into 5, 7, or rarely 9 linear or subulate pectinate-ciliate lobes. Connective thickened and usually produced into a concave appendage. Flowers yellow. Bracteoles often persistent.

This group corresponds nearly to Schauer's section *Chrysoma*. The calyx-segments are as in B, but the tube is different, the petals more rigid, and the connective often curiously developed.

10. **V. fimbrilepis**, *Turcz. in Bull. Mosc.* 1847, i. 158. Erect, with slender branches. Leaves linear, semiterete or triquetrous, obtuse or micro-

nulate, mostly 2 to 3 lines long, clustered on the smaller branches. Flowers rather small, on pedicels scarcely above 2 lines long, in small, terminal, leafy corymbs, or rarely ovoid, leafy panicles. Bracteoles usually persistent and connate at the base. Calyx-tube almost hemispherical, 10-ribbed, glabrous, not above 1 line diameter; primary lobes 5, spreading to about 4 lines diameter, each one digitately divided into 5 or 7 linear, pectinate-ciliate (white?) lobes. Petals ovate, striate, deeply fringed, nearly as long as the calyx-lobes. Stamens short; anthers globular, 2-porose, the connective thickened and produced into a short obtuse appendage, sometimes exceeding the cells; staminodia petal-like, fringed. Ovules 2. Style very short, glabrous.

W. Australia, Drummond, 3rd Coll. n. 24.

11. **V. serrata**, Schau. Myrt. Xeroc. 70. Stout, erect, and rigid. Leaves mostly alternate, from linear-lanceolate acute and $\frac{1}{2}$ to $\frac{3}{4}$ in. long, to oblong or obovate, and 2 to 4 lines long, all rigid, concave or keeled, the margins ciliate with short stiff hairs. Flowers yellow, on slender pedicels, in dense, terminal, leafy corymbs. Bracteoles very deciduous. Calyx-tube glabrous; primary lobes 5, spreading to 4 or 5 lines diameter, each with a broadly cordate or auriculate base, deeply divided into digitate, plumose-ciliate, subulate lobes. Petals ovate, rather thick, concave, more or less toothed at the end. Stamens shortly united; anthers globular, 2-porose, the connective produced into an ovate or lanceolate, obtuse, concave appendage, exceeding the cells; staminodia petal-like, oblong, entire, connivent over the stamens. Style subulate, glabrous. Ovules 2.—Hook. Journ. Bot. ii. t. 13; *Chrysorrhoe serrata*, Lindl. in Swan Riv. App. 6.

W. Australia, Drummond. His specimens comprise four forms, which might almost be taken for distinct species:—*a*. Leaves short and broad. Petals broad, rather deeply toothed. Appendage of the connective broad, very obtuse. 1st Coll. n. 145, 3rd Coll. n. 169.—*b*. Leaves long and narrow. Petals ovate, less deeply toothed. Appendage of the connective rather narrow and sometimes acuminate. 3rd Coll. n. 168.—*c*. Leaves of *b*. Flowers of *a*. 5th Coll. n. 107.—*d*. Leaves of *a*. Flowers of *b*. (4th Coll.?) n. 47.

12. **V. nitens**, Schau. Myrt. Xeroc. 71, t. 4 B, and in Pl. Preiss. i. 102. Small, erect, and corymbosely branched. Leaves linear, semiterete, rather slender, acute or mucronulate, mostly $\frac{1}{2}$ to $\frac{3}{4}$ in., but the lower ones sometimes above 1 in. long. Flowers golden-yellow, on slender pedicels, in a broad terminal corymb. Bracteoles very deciduous. Calyx-tube shortly turbinate, glabrous; primary lobes 5, spreading to about 4 lines diameter, divided nearly to the base into 7 to 11 digitate, subulate, pectinate-plumose lobes. Petals ovate or obovate, glabrous, about as long as the calyx, thick and striate in the centre, thin at the edge, and fringed with short irregular teeth. Stamens scarcely united at the base; anthers globular, 2-porose, but often almost entirely enclosed in the large concave or hood-shaped appendage of the connective, which is usually obtusely 2-lobed at the top; staminodia short, subulate. Style filiform, glabrous. Ovules 2.—Bot. Mag. t. 5286; *Chrysorrhoe nitens*, Lindl. in Comp. Bot. Mag. ii. 357, and Swan Riv. App. t. 1.

W. Australia. Swan River, Drummond, 1st Coll., 3rd Coll. n. 166; Oldfield; Preiss, n. 173.

13. **V. grandiflora**, Endl. in Ann. Wien. Mus. ii. 195. Erect, rigid, and rather stout, 1 to 2 ft. high or rather more. Leaves from linear, semi-

terete or triquetrous, and $\frac{1}{2}$ to 1 in. long, to oblong or obovate, concave or keeled, and 2 to 3 lines long, usually thick, obtuse or mucronulate, crowded on the short lateral shoots. Flowers yellow, on slender pedicels, in a rather loose, terminal leafy corymb. Bracteoles persistent, connate at the base. Calyx-tube glabrous, broadly turbinate; primary lobes 5, often spreading to a diameter of $\frac{3}{4}$ in., but sometimes smaller, each deeply divided into 5 to 9 digitate, subulate, pectinate-ciliate, or plumose lobes. Petals deeply divided into 7 to 11 or even more digitate, subulate, entire lobes. Stamens slightly united at the base; anthers globose, 2-porose, the connective thickened into a concave or hooded appendage, much longer than the cells, with 2 long horn-like points turned down over them; staminodia lanceolate or oblong, petal-like, more or less toothed or fringed, connivent outside the stamens. Style subulate, glabrous. Ovules 2.—Schau. Myrt. Xeroc. 75; Hook. Journ. Bot. ii. t. 14; *V. heliantha*, Linnl. Swan Riv. App. 6; *V. nobilis*, Meissn. in Journ. Linn. Soc. i. 39.

W. Australia. Swan River, *Drummond*, 1st Coll.; Murchison river and Irwin river, *Champion Bay*, *Oldfield*, *Drummond*, 6th Coll. n. 47.

14. **V. chrysantha**, *Endl.* in *Ann. Wien. Mus.* ii. 195. Very nearly allied to *V. grandiflora*, with the same foliage, persistent bracteoles, calyx and petals. Inflorescence usually looser, the flowers fewer and rather smaller, yet larger than in *V. Preissii*. Anthers with the connective erect and projecting beyond the cells, larger than in *V. Preissii* and in *V. acerosa*, but not 2-horned, as in *V. grandiflora*; staminodia oblong-lanceolate, petal-like and connivent outside the stamens, entire or slightly toothed.—Schau. Myrt. Xeroc. 73, and in *Pl. Preiss.* i. 102; *V. Gilbertii*, *Turcz.* in *Bull. Mosc.* 1847, i. 160.

W. Australia. In the interior, *Roe*, *Preiss.* n. 178, *Gilbert*; Oldfield Range, *Maxwell*. The specimens are none of them very satisfactory.

15. **V. Preissii**, *Schau.* in *Pl. Preiss.* i. 101. An erect shrub of 1 to $1\frac{1}{2}$ ft. Stem-leaves linear, semiterete or triquetrous, acute or mucronate, rarely above $\frac{1}{2}$ in. long, usually densely crowded on the short lateral branches, the upper ones below the corymb often more distant, those in the corymb shorter and lanceolate, or in some specimens small, ovate or even orbicular, thick and concave. Flowers yellow, on slender pedicels, in a compact terminal corymb. Bracteoles persistent, connate at the base. Calyx-tube broadly turbinate, 10-ribbed, glabrous; primary lobes 5, spreading to a diameter of about 4 lines, digitately divided into 7 or 9 subulate, pectinate-ciliate or plumose lobes. Petals deeply divided into 7 to 11 digitate, subulate, entire lobes, about as long as the calyx. Stamens very shortly united; anthers globular, 2-porose, the connective slightly thickened and produced into a concave appendage, very shortly exceeding the cells; staminodia oblong, petal-like, entire, connivent outside the stamens. Style filiform, glabrous. Ovules 2.—*V. Endlicheriana*, *Schau.* in *Pl. Preiss.* i. 101.

W. Australia. Between King George's Sound and Swan River, *Oldfield*, *Drummond*, (4th Coll. ?) n. 65, 5th Coll. n. 112, *A. C. Gregory*; rocky heights, near Halfway House, Gordon river, and foot of Koukoberup hills towards Cape Riche, *Preiss.* n. 175, 179, 181; Young river, *Maxwell*. The species is very near on the one hand to *V. chrysantha*, but with much smaller densely corymbose flowers, and on the other to *V. acerosa*, but with perfectly entire staminodia.

16. **V. acerosa**, *Lindl. Swan Riv. App.* 6. Erect, attaining 1 to 3 ft., the branches usually virgate and rather slender. Leaves varying from linear-triangular, slender, mucronate and nearly $\frac{1}{2}$ in. long, to ovate-lanceolate, concave and 2 to 3 lines long, those crowded on short lateral shoots usually the longest and most slender, but sometimes all long and narrow, or all short and broad. Flowers yellow, rather small, in trichotomous terminal corymbs, on pedicels of 3 lines or more. Calyx-tube turbinate, strongly 10-ribbed, glabrous; primary lobes 5, spreading to 4 or 5 lines diameter, each deeply divided into 5 or 7 digitate, subulate, pectinate-ciliate or plumose lobes. Petals divided almost to the base, into 5, 7 or 9 subulate, digitate lobes, rigid and entire. Stamens very shortly united; anthers globose, 2-porose, the connective with a short obtuse appendage, scarcely exceeding the cells; staminodia lanceolate or oblong, petal-like, fringed or pinnatifid, connivent over the stamens. Style rather short, glabrous. Ovules 2.—*Schau. Myrt. Xeroc.* 68, and in *Pl. Preiss.* i. 101.

W. Australia. Swan River, *Drummond, 1st Coll. n.* 164; Darling Range, *Preiss.* n. 176.

D. Calyx-tube hemispherical or turbinate, with a ring of long hairs at the base, otherwise glabrous, pubescent or shortly villous; primary lobes 5, spreading or partially reflexed, divided into numerous subulate or hair-like lobes or long cilia, either all simple or some of them slightly branched or ciliate near the base. Connective small.

This group has the calyx-tube of B, with the lobes of some species of E, and the reflexed marginal cilia may be occasionally mistaken for the accessory lobes of the latter group, but in D these reflexed cilia never really proceed from distinct lobes, alternating with the spreading ones.

17. **V. polytricha**, *Benth.* Erect and bushy, with the habit and foliage nearly of *V. Harveyi*, but with a different calyx. Leaves linear, semiterete or triquetrous, slender, obtuse, mostly 3 to 4 lines long, very densely crowded on the short shoots, more distant below the corymb. Flowers small, on short pedicels, in broad, compact, terminal, leafy corymbs, often pedunculate. Calyx-tube hemispherical, with long dense hairs at the base, glabrous and contracted at the top; primary lobes 5, spreading to 3 or nearly 4 lines diameter, deeply divided into very numerous, long, simple cilia, the margins not reflexed. Petals short, ovate, pubescent, slightly ciliate. Stamens very shortly united; anthers very small, globular, 2-porose; connective small; staminodia lanceolate, acute, longer than the stamens. Style shortly exserted, slender, incurved and bearded at the end. Ovule 1 (or 2?).

W. Australia. Murchison river, *Oldfield, Drummond, 6th Coll. n.* 49.

18. **V. demissa**, *F. Muell. Herb.* Procumbent and rigid, with numerous short ascending branches. Leaves linear, semiterete or triquetrous, obtuse, rarely above 2 lines long, crowded on the short branches. Flowers small, on short thick pedicels in the upper axils, numerous, but scarcely corymbose. Calyx-tube nearly 1 line diameter, the short adnate part faintly 10-ribbed and densely hirsute with long spreading hairs, the free part broad, smooth, and glabrous; primary lobes 5, spreading to a diameter of about 3 lines, each one divided to the base into long simple cilia or subulate lobes, of

which 2 or 3 thicker and longer than the others. Petals ovate, very thin, densely pubescent, entire or nearly so. Stamens very shortly united; anthers globose, 2-porose; connective thickened, but not exceeding the cells; staminodia lanceolate-subulate, entire. Style rigid, subulate, exceeding the corolla by 3 or 4 lines, bearded with a few stiff hairs near the point. Ovules 2.

W. Australia. *Drummond*, 5th Coll. n. 113; *Fitzgerald* ranges, *Maxwell*. The rigid spreading bristles of the calyx, the almost globular pubescent corolla in the centre, with the long protruding style give the flowers a peculiar aspect.

19. **V. humilis**, *Benth.* Apparently a small slender procumbent shrub. Leaves linear, triquetrous, or laterally compressed, distinctly petiolate, 2 to 3 lines long, not crowded in our specimen. Flowers rather large, often on very short pedicels in the upper axils. Calyx-tube very broad and short, 10-ribbed, hirsute with spreading hairs near the base, otherwise pubescent; primary lobes 5, spreading to about 5 lines diameter, divided at the base into numerous purple subulate or hair-like lobes, the inner ones more rigid and entire, the outer ones more slender and plumose with a few long cilia. Petals ovate, pubescent, entire, connivent. Stamens very shortly united; anthers globular, 2-porose, with a very small connective. Staminodia lanceolate-subulate, entire. Style very long and subulate, not bearded. Ovules 2 (or sometimes 1?).

W. Australia. *J. S. Roe*.

20. **V. penicillaris**, *F. Muell. Fragm.* i. 226. Rigid, diffuse or prostrate and much branched. Leaves linear, concave, keeled or triquetrous, obtuse or mucronate, 1 to 2 lines long, crowded. Flowers large for the size of the plant, on short pedicels in the upper axils, forming a broad irregular leafy corymb. Calyx-tube hemispherical, densely hirsute with long rigid hairs at the base, otherwise pubescent; primary lobes 5, spreading to a diameter of above $\frac{1}{2}$ in., divided to the base into numerous long hair-like simple or branched cilia, a few more rigid than the others, the marginal ones reflexed on the tube. Petals ovate, fringed with numerous cilia, very fine, but rarely longer than the breadth of the lamina. Stamens very shortly united; anthers nearly globular, 2-porose, the connective not prominent. Style very long, purple, bearded near the end with remarkably long spreading hairs. Ovules 2.

W. Australia. Table Hill, Champion Bay, *Oldfield*.

21. **V. multiflora**, *Turcz. in Bull. Mosc.* 1847, i. 159. Branches apparently divaricate. Leaves linear, thick, semiterete or triquetrous, obtuse, rarely exceeding 2 lines, crowded on the short lateral shoots. Flowers (yellow) rather small, on pedicels attaining 2 to 3 lines, in small dense terminal corymbs. Calyx-tube densely hirsute at the base, the free part broad and glabrous; primary lobes 5, spreading to about 4 lines diameter, deeply divided into very numerous long cilia, of which 3 to 5 thicker and subulate, and a few of the marginal ones sometimes forming auricles reflexed on the tube. Petals ovate, shorter than the calyx-lobes, fringed with numerous cilia. Stamens very shortly united; anthers globular, 2-porose, the connective inconspicuous. Staminodia subulate, longer than the stamens. Style shortly exerted, bearded from below the middle with a few long hairs;

stigma broadly capitate. Ovules 2.—*V. brachypoda*, Turcz. in Bull. Mosc. 1847, i. 158.

W. Australia, *Drummond*, 3rd Coll. n. 26 and 28; 5th Coll. n. 111. Plantagenet, Stirling, and Fitzgerald ranges, *Maxwell*. The species is allied to *V. Huegelii*, but the leaves are shorter and thicker, the cilia of the calyx much less numerous, the stigma much smaller, and the staminodia different.

22. **V. Huegelii**, *Endl. in Hueg. Enum.* 16. Erect with slender branches. Leaves linear, rather slender, semiterete or triquetrous, obtuse, 2 to 4 lines long, crowded on the short lateral shoots. Flowers (white or pink?), on pedicels of 3 to 4 lines, in small loose terminal corymbs or in the upper axils. Calyx-tube strongly 10-ribbed, densely hirsute at the base, otherwise pubescent; primary lobes 5, spreading to a diameter of 4 to 5 lines or rather more, and divided into exceedingly numerous fine cilia, forming a dense globular tuft, a few of the inner ones more rigid and subulate, some of the outer ones occasionally branched, and several on the outer margins closely reflexed on the tube so as often almost to cover it, but without any distinct accessory lobes. Petals much shorter than the calyx-lobes, fringed with numerous fine cilia. Stamens very shortly united; anthers globular, 2-porose, the connective inconspicuous. Staminodia lanceolate, connivent over the stamens, more or less fringed with long cilia, but very variable as to breadth. Style shortly exerted, bearded; stigma peltate, larger than in any other species. Ovules 2.—*Schau. Myrt. Xeroc.* 61, and in *Pl. Preiss.* i. 99; *V. fimbripetala*, Turcz. in Bull. Mosc. 1849, ii. 19.

W. Australia. Swan River, *Drummond*, 1st Coll. n. 175; Darling Range, *Preiss*, n. 177; Harvey river, *Oldfield*; Kalbar river, *Maxwell*.

V. stylosa, Turcz. in Bull. Mosc. 1847, i. 160, is founded on specimens of Gilbert's n. 327, which I have not seen. The essential characters given are precisely those of *V. Huegelii*, except the colour of the flowers and the appendage to the anthers, which belong to the group C, in which are never found the other characters given. It is probable, therefore, that some fragments of *V. serrata* or its allies may have got mixed with the author's specimens of *V. Huegelii*, and the *V. stylosa* made up of both.

E. Calyx-tube various; primary lobes 5, spreading, either digitate with pectinate lobes, or divided into very numerous hair-like lobes or cilia, and 5 accessory ones alternating with them on the outside, very thin and scarious, closely reflexed on the tube, divided into numerous fine cilia, and turned up again from the base of the tube. Connective small. Lower leaves laterally compressed or triquetrous.

This group has the accessory calyx-lobes, but not the herbaceous appendages to the tube of the group C of *Cutocalypta*, and the anthers and ovary are quite those of *Euverticordia*.

23. **V. insignis**, *Endl. in Hueg. Enum.* 47.—An erect shrub of 1 to 2 ft., branching from the base. Leaves from broadly ovate to oblong, very obtuse or almost mucronate, 2 to 4 lines long, the lower ones and those of the barren branches often laterally compressed or vertical, others with the upper edge dilated, and the upper ones often concave and keeled only. Flowers on pedicels often exceeding 1 in., in loose irregular terminal leafy corymbs. Bracteoles deciduous. Calyx-tube 10-ribbed, about 2 lines long, quite concealed by the accessory lobes, which are closely reflexed to the base, and there turned up again and divided into numerous long cilia, which appear

to form a fringe to the base of the tube; primary lobes spreading to about $\frac{1}{2}$ in. diameter, deeply divided into 5 to 9 digitate linear lobes fringed with long cilia. Petals orbicular, fringed with cilia, inserted on the staminal tube near its base. Stamens united into a broad short tube above the calyx; filaments longer than the petals; anthers small, globular, 2-porose; staminodia fringed with long cilia. Style glabrous with a capitate stigma. Ovules 2.—Lindl. Swan Riv. App. t. 2 A; Schau. Myrt. Xeroc. 65, and in Pl. Preiss. i. 100.

W. Australia. Swan River, *Huegel*; *Drummond*, 1st Coll.; *Preiss*, n. 167 and 168, and others.

V. compla, Endl. in Anu. Wien. Mus. ii. 194, and *V. Rovi*, Endl. l. c., appear to be only a small-leaved variety of *V. insignis*; the specimens are in a bad state, but the staminodia are certainly fringed in both. *Preiss*'s specimens, referred by Schauer to *V. compla*, appear to me to be a very common form of *V. insignis*.

24. **V. habrantha**, Schau. in Pl. Preiss. i. 100. A shrub of 2 or 3 ft., with slender often virgate branches. Lower leaves and those of the short side branches often laterally compressed, falcate-oblong, dilated on the upper edge or triquetrous, and attaining 3 to 4 lines, the upper ones in the corymb are sometimes nearly all obovate or oblong, concave with a prominent keel and not 2 lines long. Flowers rather small, on pedicels of $\frac{1}{4}$ to $\frac{1}{2}$ in., in irregular terminal leafy corymbs. Bracteoles deciduous. Calyx-tube turbinate, 10-ribbed, pubescent at the base; primary lobes 5, spreading to a diameter of about 4 lines, deeply divided into subulate simple or forked lobes fringed below the middle with long cilia; and 5 accessory outer lobes reflexed on the tube, turned up again from the base, and deeply divided into numerous long fine cilia. Petals ovate, entire or obscurely denticulate, contracted at the base. Stamens shortly united above the calyx; anthers globular, 2-porose; connective small; staminodia rather broad, fringed with a few long cilia. Style exceedingly short, glabrous, with a capitate stigma. Ovules 2.—*V. umbellata*, Turcz. in Bull. Mosc. 1847, i. 159; *V. brachystylis*, F. Muell. Fragm. i. 164.

W. Australia, *Drummond*, 3rd Coll. n. 25; 5th Coll. n. 108 and 109 (the latter with large flowers); Gordon river, *Preiss*, n. 169; Kalgan, Gordon, and Tone rivers, *Oldfield*; Gardiner river and Mount Manypeak, *Maxwell*. Turczaninow must either have mistaken the anther-cells for a cucullate connective, and the small persistent base of the bracteoles for the bracteoles themselves, or to have mixed up his description of this species with that of *V. nitens*.

25. **V. monadelpha**, Turcz. in Bull. Mosc. 1847, i. 158. Erect and much branched. Leaves linear, triquetrous or laterally compressed, mostly mucronate, rather thick, often above $\frac{1}{2}$ in. long. Flowers rather large, pink or white, in broad or loose terminal leafy corymbs, each flower having the appearance of a dense globular tuft of hairs of at least $\frac{1}{2}$ in. diameter. Calyx-tube about 2 lines long, broadly turbinate, 10-ribbed and hairy at the base, the free part very broad and glabrous; primary lobes 5, spreading, and 5 accessory outer ones reflexed on the calyx-tube and turned up from its base, all deeply divided into exceedingly numerous long cilia. Petals short, ovate, fringed with long cilia, adnate to the staminal tube to about half its length. Stamens united in a broad tube for about a line above the calyx; filaments

often exceeding the petals; anthers globular, 2-porose, with a minute scale-like appendage to the small connective; staminodia lanceolate-subulate, entire. Style rather short, glabrous; stigma capitate. Ovules 2.—*V. callitricha*, Meissn. in Journ. Linn. Soc. i. 39.

W. Australia. *Drummond*, 3rd Coll. n. 27; Murchison river, *Drummond*, 6th Coll. n. 48; *Oldfield*.

26. **V. Lehmanni**, *Schau. in Pl. Preiss.* i. 99. Slender, erect, and slightly branched, usually from 1 to 1½ ft. high. Leaves mostly in distant pairs, linear-oblong or falcate, laterally compressed or triquetrous, obtuse or mucronate, 3 to 4 lines long, the upper ones near the flowers not half so long, oblong or almost ovate and concave. Flowers rather small, on pedicels of 1 to 2 lines, few in small compact terminal corymbs, or in more luxuriant specimens axillary below the ends of the loosely corymbose upper branches. Calyx-tube 1½ lines long, the adnate part shortly villous at the base, the free part prominently 10-ribbed and glabrous; primary lobes 5, spreading, deeply divided into about 5 subulate lobes, with several long cilia between them, 5 accessory outer ones closely reflexed on the tube and turned up from its base, thin and transparent, deeply divided into numerous cilia. Petals ovate, very thin, irregularly lobed or ciliate at the end, inserted near the top of the staminal tube. Stamens united in a broad short tube; anthers globular, 2-porose, with a slightly-thickened connective; staminodia lanceolate-subulate, slightly glandular. Style shortly exserted, incurved towards the end and bearded at the bend. Ovules 2.

W. Australia, *Drummond*, n. 15; Molloy's Plains, Sussex district, *Preiss*, n. 166.

SECTION 2. CATOCALYPTA.—Anthers ovoid or oblong, with parallel cells adnate to a more or less thickened connective, and opening in longitudinal slits. Ovules several, usually 8 or 10, in 2 rows on an obliquely peltate or rarely stalk-like placenta.

This section, with the anthers and ovary of *Chamælancium*, is only distinguished from it by the calyx. I have adopted Schauer's name for it, although somewhat differently limited.

A. Calyx-lobes 5, spreading, without reflexed accessory lobes or herbaceous appendages. Racemes short, mostly terminal, almost corymbose. Leaves linear-triquetrous or semiterete.

The two species here inserted have not the herbaceous appendages to the calyx which characterize the rest of the section, and in inflorescence they show an approach to *Euvorticordia*, but the anthers and some other points indicate a closer affinity with *Catocalypta*.

27. **V. Cunninghamii**, *Schau. Myrt. Xeroc.* 55. A tall erect shrub. Leaves linear, triquetrous or concave, obtuse or mucronate, mostly ½ in. but sometimes ¾ in. long. Flowers on pedicels of about ¼ to ½ in. in the upper axils, forming short terminal almost corymbose racemes arranged in a long leafy panicle. Calyx-tube hemispherical, 10-ribbed; primary lobes 5, spreading to ½ in. diameter, each one deeply divided into long digitate pectinate-ciliate lobes, the lateral ones reflexed on the tube, but no accessory lobes. Petals much shorter than the calyx-lobes, ovate, fringed with irregular teeth. Stamens shortly united above the calyx; anther-cells parallel, opening longitudinally, adnate to a connectivum, thickened at the end into a small fleshy

appendage; staminodia linear, entire. Style shortly exserted, with a ring of hairs round the capitate stigma. Ovules 8 or 10.

N. Australia. York Sound, *A. Cunningham*; Victoria river, *Bynoe*, islands of the Gulf of Carpentaria, *A. Brown*; Macadam range, *F. Mueller*; Port Essington, *Armstrong*.

28. **V. picta**, *Endl. in Ann. Wien. Mus.* ii. 194. Branches spreading, rather slender. Leaves linear, semiterete or triquetrous, obtuse or mucronate, mostly 2 to 4 lines long. Flowers white or pink, rather large, on pedicels of 3 or 4 lines, in loose terminal corymbs or short leafy panicles. Calyx-tube hemispherical, glabrous, obscurely 10-ribbed in the free part; primary lobes 5, spreading to about 5 lines diameter, deeply divided into 7, 9, or 11 digitate linear pectinate-ciliate scarious lobes. Petals inserted on the staminal tube shortly above the calyx, broadly ovate, entire, longer than the calyx-lobes. Stamens united in a broad tube; filaments short; anthers oblong, with parallel cells opening longitudinally; staminodia lanceolate-subulate, entire. Style shortly bearded below the stigma. Ovules about 10, appended to as many marginal lobes of a somewhat peltate, excentric placenta.—*Schau. Myrt. Xeroc.* 53.

W. Australia, *Roe*; Swan River, *Drummond*, 1st *Coll. n.* 170; *S. Hutt* and *Murchison* rivers, *Oldfield*.

V. pentandra, *Turez. in Bull. Mosc.* 1847, i. 157, described from *Gilbert's* specimens, *n.* 329, which I have not seen, appears from the character given not to differ from *V. picta*.

B. Calyx-lobes 5, spreading, without accessory reflexed segments, but with 5 herbaceous reflexed appendages on the tube under the lobes. Flowers usually forming oblong racemes or spikes below the ends of the branches. Leaves small.

The reflexed herbaceous appendages which distinguish this group from A are rather variable, in *V. pennigera* occasionally reduced to a slight gibbosity under the lobes, sometimes in that species extending $\frac{1}{2}$ down the tube, in others halfway down or nearly to the base, always closely appressed to the tube between the ribs, and sometimes shortly adnate to it.

29. **V. pennigera**, *Endl. in Hueg. Enum.* 46. Stems in some specimens short and erect from a thick stock, in others slender, spreading, or virgate. Leaves linear and semiterete or triquetrous, or oblong and concave, obtuse or mucronate, 1 to 2 lines long, crowded on the small lateral shoots, the margins more or less ciliate. Flowers on short pedicels in the upper axils, forming leafy racemes, sometimes collected into thyrsoid panicles. Calyx-tube turbinate, 5-ribbed; primary lobes 5, spreading to a diameter of 4 or 5 lines, deeply divided into subulate plumose lobes, with a few long lateral cilia closely reflexed on the tube, without accessory lobes, but with herbaceous adnate appendages reflexed on the tube under the lobes, very short and broad and sometimes scarcely more than broad gibbosities. Petals obovate-oblong, striate, toothed or fringed at the end, connivent over the stamens. Stamens shortly united above the calyx; anther-cells parallel, opening longitudinally, the connective not much thickened. Style slightly bearded. Ovules about 6.—*Schau. Myrt. Xeroc.* 59, and in *Pl. Preiss.* i. 99; *V. setigera*, *Lindl. Swan Riv. App.* 7.

W. Australia. Swan River, *Drummond*, 1st *Coll. Preiss.* *n.* 182; *Murchison*, *Gordon*, and *Kalgau* rivers, *Oldfield*; *Dirk Hartog's Island*, *Martin*; *Gardner* ranges and *Colt*

river, *Maxwell*.—The species differs slightly from *V. Drummondii* in the ciliate leaves, the shortness of the calyx-appendages, and the longer more striate petals.

30. **V. Drummondii**, *Schau. Myrt. Xeroc.* 56, and in *Pl. Preiss.* i. 98. A shrub with virgate or divaricate branches, and much the aspect of *Erica vulgaris*. Leaves obovate or oblong, very obtuse, rather thick and concave, 1 to 2 lines long, imbricate on the short lateral shoots, entire or minutely or obscurely denticulate-ciliate. Flowers on short pedicels in the upper axils, forming oblong leafy racemes or dense thyrsoid panicles. Calyx-tube turbinate, 5-ribbed; primary lobes 5, spreading to 4 or 5 lines diameter, deeply divided into subulate plumose lobes, the marginal ones sometimes reflexed on the tube; no accessory lobes, but 5 herbaceous appendages reflexed under the lobes, and often half as long as the tube. Petals ovate, connivent, striate and fringed at the end. Stamens shortly united above the calyx; anther-cells parallel, opening longitudinally; connective not much thickened; staminodia lanceolate-subulate, bordered by prominent glands. Style slightly bearded. Ovules about 6.—*V. carinata*, Turcz. in Bull. Mosc. 1849, ii. 19.

W. Australia. Swan River, *Drummond*, 1st Coll.; *Preiss*, n. 171; between Toure and Gordon rivers, *Oldfield*.

Var. *Lindleyi*. Leaves broader and less imbricate, often distant and spreading, and quite entire. *V. Lindleyi*, *Schau. Myrt. Xeroc.* 58, and in *Pl. Preiss.* i. 98; *Drummond*, 4th Coll. n. 46; Irwin river, *Preiss*, n. 170.

31. **V. pholidophylla**, *F. Muell. Fragm.* i. 227. A shrub of 1 to 2 ft., with spreading branches, very closely allied to *V. Drummondii*. Leaves ovate or obovate, thick, concave, obtuse, rarely above 1 line long, closely imbricate on the smaller branches. Flowers on very short axillary pedicels below the ends of the branches, often assuming a slight yellowish tinge. Calyx-tube turbinate, 5-ribbed; primary lobes 5, spreading to about 4 or 5 lines diameter, deeply divided into 7 or 9 subulate plumose or ciliate lobes, a few of the lateral cilia reflexed on the tube; no accessory lobes, but 5 herbaceous reflexed appendages under the lobes, about half as long as the tube. Petals ovate, ciliate-fringed, about as long as the calyx-segments, inserted on the staminal tube. Stamens united at the base into a short broad tube; anther-cells parallel, opening longitudinally, connective somewhat thickened; staminodia linear-subulate, short. Style incurved and bearded towards the end. Ovules 6 to 8.

W. Australia. Coalcurda, north of Murchison river and sandy plains south of Oolingara, *Oldfield*; Roebuck Bay, *Marten*.

C. Calyx with 5 primary lobes spreading, each one divided into subulate plumose lobes, 5 accessory lobes outside and alternate with the primary one, thin and transparent, reflexed on tube, fringed or densely ciliate and turned up again from the base of the tube, and 5 herbaceous reflexed appendages on the tube between the ribs and under the lobes. Flowers forming racemes or spikes below the ends of the branches, or rarely short terminal racemes. Leaves obovate or orbicular, usually glaucous.

This group has the appendages to the calyx-tube of the preceding one, and in addition the accessory lobes of the group E of *Euvorticordia*.

32. **V. spicata**, *F. Muell. Fragm.* i. 226. Much resembling some forms of *V. Drummondii*, but with a different calyx. Leaves obovate or orbicular, concave, obtuse, not 1 line long, minutely denticulate-ciliate, and very closely imbricate except the floral ones, which are twice as large and looser. Flowers nearly sessile, forming dense spikes below the summits of the branches. Calyx-tube 5-ribbed; primary lobes 5, spreading to a diameter of nearly $\frac{1}{2}$ in., deeply divided into 5 to 9 linear-subulate plumose-ciliate lobes, 5 accessory reflexed external lobes ovate-lanceolate, transparent, fringed with a few long cilia, and 5 herbaceous appendages reflexed between the ribs under the primary lobes, and nearly as long as the tube. Petals ovate, thin, fringed with long cilia. Stamens united at the base in a very short broad tube; anthers oblong, the cells parallel, opening longitudinally, and adnate to a broad thick connective; staminodia linear, rather thick. Style shortly exerted, bearded towards the end. Ovules about 8, in two rows, on a rather long stalk-like placenta.

W. Australia. Murchison river, *Oldfield*.

33. **V. lepidophylla**, *F. Muell. Fragm.* i. 228. Erect, attaining 3 or 4 ft., with spreading branches, resembling *V. pholidophylla*, but with a different calyx. Leaves obovate-orbicular, concave, obtuse, rarely above 1 line long, thick, entire or minutely denticulate-ciliate, imbricate on the smaller branches. Flowers on very short pedicels, axillary below the ends of the branches. Calyx-tube nearly hemispherical, 5-ribbed; primary lobes 5, spreading to a diameter of 4 or 5 lines, digitately divided into 7 to 9 linear plumose-ciliate lobes, 5 accessory external lobes closely reflexed on and covering the tube, orbicular, transparent, fringed at the edges, and 5 herbaceous appendages reflexed between the ribs, but exceedingly short and broad. Petals as long as the calyx-lobes, entire or minutely denticulate, attached near the summit of the staminal tube. Stamens united for nearly a line above the calyx; anthers ovoid, with parallel cells opening longitudinally; staminodia spatulate, fringed at the end. Style exerted, bearded towards the end. Ovules about 6.

W. Australia. Murchison river, *Oldfield*.

34. **V. ovalifolia**, *Meissn. in Journ. Linn. Soc.* i. 40. Branches slender, virgate. Leaves obovate, concave, erect, squarrose, or spreading, mostly 2 to 3 lines long. Flowers on pedicels shortly exceeding the leaves, not numerous, in a short terminal corymbose raceme. Calyx-tube about $2\frac{1}{2}$ lines long, the 5 ribs not very prominent; primary lobes 5, spreading to nearly $\frac{1}{2}$ in. diameter, deeply divided into 8 to 10 long plumose lobes; 5 accessory external lobes, thin and transparent, closely reflexed, and almost covering the tube with their long marginal cilia; 5 herbaceous appendages under the primary lobes reflexed on the tube, but exceedingly short and broad. Petals broad, inserted on the staminal tube shortly above the calyx, irregularly divided into 5 or 6 more or less fringed lobes. Stamens united nearly a line above the calyx; anther-cells parallel, opening longitudinally, connective thick; staminodia slightly clavate at the end. Style bearded below the stigma. Ovules about 8.

W. Australia. Between Moore and Murchison rivers, *Drummond*, 6th Coll. n. 45.

Meissner appears to have overlooked the appendages to the calyx-tube, which, although much shorter than in either of the following species, certainly exist in our specimens.

35. **V. chrysostachya**, *Meissn. in Journ. Linn. Soc. i. 41.* Erect, with virgate branches, glaucous like the allied species or assuming a yellow hue, at least in the dried specimens. Leaves obovate or orbicular, erect, and concave or nearly flat, squarrose or spreading, rather thick and almost nerveless. Flowers yellow, on pedicels rarely exceeding the leaves below the ends of the branches. Calyx-tube about 2 lines long, 5-ribbed; primary lobes 5, spreading to a diameter of about $\frac{1}{2}$ in., deeply divided into plumose lobes; 5 accessory external lobes closely reflexed and turned up from the base of the tube, completely covering it with their numerous cilia, and 5 herbaceous appendages shorter than the tube reflexed upon it between the ribs from under the primary lobes. Petals inserted on the staminal tube, broadly cordate, fringed with long cilia. Stamens united above the calyx in a short broad tube; anther-cells parallel, opening longitudinally, on a thickened connective; staminodia subulate, thickened at the base. Style bearded below the stigma with short hairs. Ovules 6 to 8.

W. Australia. Between Moore and Murchison rivers, *Drummond, 6th Coll. n. 46.*

36. **V. oculata**, *Meissn. in Journ. Linn. Soc. i. 41.* A glaucous shrub attaining 5 or 6 ft., but often flowering when under 2 ft., with slender or spreading branches. Leaves orbicular, stem-clasping, 3 to 5 lines diameter, faintly 3- or 5-nerved or quite nerveless, with thin edges. Flowers lilac or pale, with a dark centre, on pedicels shorter or longer than the leaves below the ends of the branches. Calyx-tube about 3 lines long, 5-ribbed; primary lobes 5, spreading to a diameter of nearly 1 in., deeply divided into long plumose lobes of a shining white, 5 thin transparent accessory lobes reflexed on the tube and turned up from the base, deeply divided into numerous cilia, and 5 herbaceous appendages alternate with the ribs, reflexed on the tube from under the primary lobes, thinner than in the allied species. Petals short and broad, fringed with 10 to 12 long subulate lobes or cilia, inserted on the staminal tube. Stamens united in a broad tube above the calyx; anther-cells parallel, opening longitudinally, the connective not much thickened; staminodia subulate-pointed but very irregular. Style exserted, the stigma surrounded by a tuft of long hairs. Ovules about 8.

W. Australia. Sandy plains between Hutt and Murchison rivers, *Drummond, 6th Coll. n. 43.*

37. **V. grandis**, *Drumm. in Hook. Kew Journ. v. 119.* A stout glaucous shrub of 3 to 6 ft., with erect or spreading branches. Leaves orbicular and half-stem-clasping, 3 to 6 lines diameter, faintly 5- or 7-nerved, with thin edges. Flowers axillary along the virgate branches, each forming when fully out a densely plumose crimson tuft of at least 1 in. diameter. Calyx-tube turbinate, 5-ribbed, about 4 lines long; primary lobes 5, spreading, divided into numerous long plumose lobes; 5 accessory lobes reflexed on the tube and turned up from the base, fringed with fine cilia, and 5 herbaceous appendages between the ribs reflexed from under the primary lobes and nearly as long as the tube. Petals orbicular, fringed with short teeth, inserted on the staminal tube considerably above the calyx. Stamens united

at the base into a broad tube; anther-cells parallel, opening longitudinally, adnate to a thick connective; staminodia subulate. Style exserted, slightly bearded above the middle. Ovules 8 to 10.—Meissn. in Journ. Linn. Soc. i. 42.

N. Australia. Lagrange Bay, N.W. Coast, *Marten*.

W. Australia. Sandy plains, Hill river, *Drummond*, 6th Coll. n. 44; Irwin river, *Oldfield*.

5. *PILEANTHUS*, Labill.

Calyx-tube turbinate or campanulate, 10-ribbed, lobes 10, spreading, all equal, broad, petal-like, entire. Petals 5, exceeding the calyx, spreading, shortly ciliate. Stamens 20, in a single row, the filaments dilated at the base, and shortly united; anther-cells parallel, opening longitudinally, either contiguous and adnate to the thickened end of the filament or separately attached to the branches of the forked filament. Ovary 1-celled, with 6 to 10 ovules in 2 rows, on an erect free excentric basal placenta. Style filiform, glabrous, with a small terminal stigma. Fruit usually 1-seeded, formed by the hardened base of the persistent calyx, but not seen ripe.—Heath-like shrubs, glabrous except the flowers. Leaves mostly opposite, linear-terete or triquetrous. Flowers in the upper axils forming terminal leafy corymbs. Bracteoles scarious, united, and enclosing the bud, circumsciss at or below the middle, and falling off together.

The genus is limited to West Australia.

Anther-cells contiguous on the clavate end of the filament . . . 1. *P. peduncularis*.
Filaments forked, each branch bearing one anther-cell.

Leaves linear-clavate, thick, 2 to 3 lines long. Pedicels short . . . 2. *P. Limacis*.

Leaves mostly linear-terete or triquetrous, 3 to 6 lines long . . . 3. *P. filifolius*.

1. ***P. peduncularis***, *Endl. in Ann. Wien. Mus.* ii. 196. An erect shrub, more or less corymbosely branched. Leaves linear-terete or triquetrous, obtuse, mostly 2 to 3 lines long and rather thick. Flowers in the upper axils on pedicels of $\frac{1}{2}$ to 1 line long. Bracteoles circumsciss about the middle, leaving a turbinate truncate persistent base, 2 to 3 lines long, almost covering the calyx-tube. Calyx silky-pubescent, tube 2 to 3 lines long; lobes broadly ovate, very obtuse, 1 to $1\frac{1}{2}$ lines long. Petals obovate, exceeding the calyx. Stamens shorter than the petals; filaments slightly clavate at the end; anther-cells contiguous and adnate.—*Schau. Myrt. Xeroc.* 29. t. 5 B; *P. vernicosus*, *F. Muell. Fragm.* i. 225.

W. Australia, *J. S. Roe, Drummond, 4th Coll. n. 48*. Owing to the badness of the original specimen, the petals were by mistake described by Endlicher as shorter than the calyx-lobes.

2. ***P. Limacis***, *Labill. Pl. Nov. Holl.* ii. 11. t. 149. Leaves linear-clavate, semiterete, very obtuse, 2 to 3 lines long, smooth or glandular-tuberculate and slightly ciliate. Flowers in the upper axils, on pedicels shorter than the leaves or slightly exceeding them. Bracteoles circumsciss rather below the middle or near the base, leaving a turbinate truncate cup much shorter than the calyx-tube. Calyx-tube above 2 lines long, broadly turbinate, silky-pubescent; lobes petal-like, nearly glabrous, minutely denticulate, shorter than the tube. Petals longer than the calyx-lobes. Filaments forked at the end, each branch bearing one of the anther-cells.—*Desf. in Ann. Mus. Par. v. t. 3*; *DC. Prod.* iii. 209; *Schau. Myrt. Xeroc.* 77. t. 5 A.

W. Australia. Sea-coast, *Labillardière*; Géographie Bay, *Baudin's Expedition* (*Herb. R. Brown*).

3. **P. filifolius**, *Meissn. in Journ. Linn. Soc.* i. 45. Erect and branching, but much less corymbose than *P. peduncularis*. Leaves linear-terete or triquetrous, obtuse, in some specimens rather thick minutely ciliate and 2 to 3 lines long, in others slender, smooth, and $\frac{1}{2}$ in. long or more. Flowers in the upper axils on pedicels often attaining $\frac{1}{2}$ in. Bracteoles circumscrib near the base, leaving the whole calyx-tube exposed. Calyx silky-pubescent, tube about 2 lines long; lobes yellow, nearly as long, obovate, slightly denticulate, Petals pink, more than twice as long as the calyx; lobes obovate, shortly fringed. Stamens shorter than the petals; filaments forked at the end, each branch bearing one of the anther-cells, the alternate stamens rather larger.

W. Australia. Murchison river, *Drummond*, 6th Coll. n. 42, *Oldfield*. Very near *P. Limacis*, and perhaps a slender-leaved variety, with longer pedicels, and the persistent base of the bracteoles usually much shorter.

6. CHAMÆLAUCIUM, Desf.

(*Decalophium*, *Turcz.*)

Calyx-tube tubular-campanulate or turbinate, 10-ribbed, or only 5-ribbed in the adnate part; lobes 5, spreading, petal-like or ciliate. Petals 5, orbicular, longer than the sepals. Stamens 10, alternating with as many staminodia, very shortly united in a ring in a single row; anthers ovoid or globular, the cells parallel, opening longitudinally, and adnate to a more or less thickened connective. Ovary 1-celled, with 6 to 10 ovules in 2 rows on an erect free excentric basal placenta. Style shorter than the petals or rather longer, thickened at the base, glabrous or fringed with spreading hairs under the capitate stigma. Fruit formed by the hardened base of the persistent calyx. Seeds 1 or 2 (not seen ripe).—Heath-like shrubs. Leaves opposite or rarely (in *C. Drummondii*) scattered, small, narrow, and sessile. Flowers sessile or shortly pedicellate in the axils of the upper stem-leaves, or few in a terminal cluster with the floral leaves reduced to small bracts. Bracteoles broad, thin, scarious, enclosing the young bud, but falling off in most species long before flowering, or rarely persistent.

The genus is limited to Australia. It differs from *Darwinia* in the anthers and in the more numerous ovules, and generally in its rather larger fewer flowers and shorter style.

Style not bearded. Calyx narrow.

Flowers axillary. Calyx-lobes deeply fringed. Staminodia oblong 1. *C. ciliatum*.

Flowers in short terminal racemes. Calyx-lobes entire or nearly so. Staminodia slender.

Calyx-tube about 2 lines long. Filaments all slender; connective scarcely thickened 2. *C. gracile*.

Calyx-tube scarcely $1\frac{1}{4}$ lines. Petaline filaments winged at the base; connective large and thick, with globular cells on the top 3. *C. heterandrum*.

Style with a ring of hairs (sometimes deciduous) under the stigma.

Calyx broadly campanulate or turbinate.

Leaves scattered or crowded, not opposite, ciliate 4. *C. Drummondii*.

Leaves opposite, not ciliate.

Bracteoles persistent, covering the calyx-tube. Flowers terminal.

- Leaves mostly $\frac{3}{4}$ in. long 5. *C. virgatum*.
 Leaves mostly $\frac{1}{4}$ in. long or less 6. *C. brevifolium*.
 Bracteoles falling off long before flowering.
 Calyx-lobes entire, very short and broad 7. *C. uncinatum*.
 Calyx-lobes ovate, minutely ciliate. Flowers terminal . . 8. *C. megalopetalum*.
 Calyx-lobes cordate, ciliate. Flowers terminal, at least
 when first opening 9. *C. pauciflorum*.
 Calyx-lobes orbicular, minutely ciliate. Flowers axillary . 10. *C. axillare*.

1. **C. ciliatum**, Desf. in *Mem. Mus. Par.* v. 40. t. 3. Erect and bushy, about 2 ft. high. Leaves opposite, crowded on the smaller branches, linear-terete or slightly triquetrous, obtuse, mostly 3 to 4 lines long on some specimens, much smaller on others. Flowers axillary below the ends of the branches, or almost terminal on the short side-branches, on pedicels much shorter than the calyx. Bracteoles scarious, cohering, but falling off in a calyptra from the very young bud. Calyx-tube under 2 lines long, narrow-turbinate, prominently ribbed; lobes orbicular, petal-like, fringed, not half so long as the petals. Petals obovate, above 1 line long, quite entire or minutely fringed under a strong lens. Staminodia ovate-oblong, more connate with the petaline than with the sepaline stamens. Connective of the anthers much thickened. Style shorter than the petals, quite glabrous.—DC. Prod. iii. 209; Schau. Myrt. Xeroc. 43, and in Pl. Preiss. i. 97; *Genetyllis pauciflora*, Turcz. in Bull. Mosc. 1849, ii. 17.

W. Australia. King George's Sound and adjoining districts, *Labillardière*, *R. Brown*, *Preiss*, n. 360, *Drummond*, 2nd Coll. n. 54, 3rd Coll. Suppl. n. 13, 4th Coll. n. 45, 5th Coll. n. 106; and eastward to Cape Arid, *Maxwell*. The eastern specimens mostly with smaller leaves.

2. **C. gracile**, *F. Muell. Fragm.* iv. 62. Branches slender, divaricate. Leaves opposite, not crowded, linear-terete or slightly triquetrous, obtuse or with a short point, mostly $\frac{1}{2}$ to $\frac{3}{4}$ in. long, but smaller on the lateral branchlets. Flowers 2 to 6, on pedicels of scarcely 1 line, in short, loose, terminal, corymbose racemes, the floral leaves reduced to small bracts. Bracteoles very deciduous. Calyx-tube slender, narrow-turbinate, about 2 lines long, prominently 10-ribbed, but only 5 ribs reaching to the base; lobes very short, broadly semiorbicular, entire or scarcely fringed. Petals obovate-orbicular, $\frac{3}{4}$ line long. Stamens nearly as long, the connective scarcely or not at all thickened; staminodia slender. Style often shortly exserted, quite glabrous, with a broad stigma.

W. Australia. Murchison river, *Oldfield*, *Drummond*, 6th Coll. n. 39, also (5th Coll. ?) n. 22.

3. **C. heterandrum**, *Benth.* Bushy and much branched. Leaves opposite, slender, linear-terete or slightly channelled above, obtuse or nearly so, about 2 to 3 lines long. Flowers small, in short, loose, axillary, almost corymbose racemes, with the floral leaves small linear and bract-like. Pedicels solitary in each axil, slender, 1 to 2 lines long. Bracteoles already fallen from the youngest buds seen. Calyx-tube narrow-turbinate or almost cylindrical, prominently ribbed, nearly $1\frac{1}{2}$ lines long; lobes exceedingly short and broad, entire. Petals orbicular, entire, rather more than $\frac{1}{2}$ line diameter. Stamens shorter, quite free; filaments of the sepaline ones filiform; those of the petaline stamens rather longer and more or less dilated at the base or to the

middle into a wing-like appendage on each side; connective of the anthers thick, obovoid or almost turbinate, with 2 globular cells at the top, quite distinct, as in *Thryptomene*, but opening longitudinally and nearly parallel; staminodia minute, inflexed, often almost concealed by the appendages of the filaments. Ovules about 6. Style glabrous, with a capitate stigma.

W. Australia, Drummond (5th Coll. ?), n. 135.

4. **C. Drummondii**, Meissn. in *Journ. Linn. Soc.* i. 44. Branches virgate. Leaves scattered or crowded, not opposite, linear, obtusely keeled, obtuse or scarcely mucronate, 3 to 4 lines long, ciliate with long hairs. Flowers nearly sessile, in terminal heads or clusters, usually of about 6 to 10. Calyx-tube broadly turbinate, about 2 lines long, prominently ribbed; lobes broadly ovate, 1 line long or rather more, shortly ciliate. Petals $1\frac{1}{2}$ line long, minutely fringed. Connective of the anthers thickened into a glandular appendage; staminodia linear, obtuse. Style with a ring of rather long hairs under the broadly capitate stigma.

W. Australia. Sandy plains, near Colbourn springs, N. of Swan River, *Drummond*, 6th Coll. n. 41; and a smaller variety with shorter leaves and fewer flowers, *Drummond* (2nd Coll. ?), n. 58.

5. **C. virgatum**, Endl. in *Ann. Wien. Mus.* ii. 193. Apparently larger than any other species, with rigid virgate branches. Leaves opposite, linear, terete or nearly so, obtuse, $\frac{3}{4}$ to 1 in. long. Flowers on short pedicels, 2 to 4 together at the ends of the branches in the axils of the last leaves, the uppermost pair reduced to small bracts. Bracteoles very broad, brown and scarious, persistent and enveloping the calyx after the flower is expanded. Calyx-tube broadly turbinate, nearly 3 lines long, obtusely ribbed; lobes orbicular, ciliate, about half as long as the petals. Petals orbicular, $1\frac{1}{2}$ lines long, minutely fringed. Anthers with a thickened globose connective and small parallel cells; staminodia linear.—Schau. Myrt. Xeroc. 44. t. 4 A.

W. Australia. E. from New York, *J. S. Roe*. Of this I have only seen the single specimen described by Endlicher and Schauer, which is a very imperfect one, but sufficient to show the remarkable persistent bracteoles, different from those of all other species except *C. brevifolium*.

6. **C. brevifolium**, Benth. Branches long and virgate. Leaves opposite, linear, concave or semiterete, mostly erect, appressed and 2 to 3 lines long on the flowering branches, more slender and rather long, with smaller ones clustered in their axils on the main branches. Flowers few, on very short thick pedicels in the upper axils, forming a terminal head or short corymbose raceme. Bracteoles very broad, truncate, brown and scarious, persistent and enveloping the calyx after the flower is expanded. Calyx-tube ovoid, about 2 lines long, the adnate part obtusely 5-ribbed, the free part broader and obscurely 10-ribbed; lobes short, broad, scarious, fringed-ciliate. Petals orbicular, entire, about $1\frac{1}{2}$ lines broad. Connective of the anthers much thickened. Staminodia linear. Style bearded under the stigma with deciduous hairs. Ovules about 6.

W. Australia, Drummond (2nd Coll. ?), n. 52. It is possible that this may prove to be a variety of *C. virgatum*, but independently of the foliage, the flowers are smaller and the shape of the calyx appears to be different.

7. **C. uncinatum**, Schau. in *Pl. Preiss.* i. 97. Erect and bushy.

Leaves opposite, linear-triquetrous, usually with a hooked point, from under $\frac{1}{2}$ in. to above $\frac{3}{4}$ in. long, much attenuate below the middle. Flowers 2 or 4, on pedicels of 2 to 3 lines, in small terminal corymbs, the floral leaves reduced to small bracts. Bracteoles exceedingly deciduous. Calyx-tube thick, full of oily receptacles, broadly turbinate, nearly 3 lines long; lobes very short and broad, quite entire. Petals orbicular, $1\frac{1}{2}$ lines diameter or rather more when fully out. Connective of the anthers thick and globular. Staminodia small, linear or clavate. Style short, with a ring of rigid hairs under the stigma. Ovules 6 to 8.—*C. affine*, Meissn. in Journ. Linn. Soc. i. 45.

W. Australia, Drummond (4th Coll. ?), n. 52; Flinders Bay, Collic; seacoast, near Fremantle, Preiss, n. 359; Swan River, Gilbert; between Moore and Murchison rivers, Drummond, 6th Coll. n. 40.

Var. *leptophyllum*. Leaves slender, linear-terete, mucronate, but not hooked. Foliage almost of *C. gracile*, with the flowers of *C. uncinatum*. Murchison river, Oldfield.

8. **C. megalopetalum**, F. Muell. Herb. Bushy and rather rigid. Leaves opposite, oblong-linear, thick, obtuse, mostly 2 to 3 lines long, convex underneath, flat or concave above. Flowers 2 or 4 at the ends of the branches, on pedicels of $1\frac{1}{2}$ to 3 lines. Bracteoles very deciduous. Calyx-tube, in the original form, broadly campanulate, 3 to 4 lines long, the ribs not prominent; lobes broadly ovate, with a rather broad sinus between them, very obtuse, 1 to $1\frac{1}{2}$ lines long, minutely ciliate. Petals from rather less to more than twice as long as the calyx-lobes, quite entire. Connective of the anthers thickened into a semicircular appendage. Staminodia linear. Style with a few stiff hairs in a ring under the stigma. Ovules 8 to 10.

W. Australia. Eastward of King George's Sound, J. S. Roe, Drummond, Maxwell. We have four different forms of this plant, which, however, may not be constant enough to establish distinct varieties, viz. 1, with large flowers and crowded leaves, from the interior, J. S. Roe; Kojonerup and E. Mount Barren, Maxwell; 2, with large flowers and short leaves, erect in distant pairs, from E. Mount Barren, Maxwell; 3, with smaller flowers, and leaves short and rather distant, from Drummond, 5th Coll. n. 105; and 4, with small flowers, crowded decussate leaves, and the calyx-lobes more distinctly ciliate and separated by a narrower sinus, from Drummond, 5th Coll. n. 104.

9. **C. pauciflorum**, Benth. An erect shrub, of 1 to 2 ft., with virgate branches. Leaves opposite, erect or slightly spreading, linear or linear-oblong, very obtuse, mostly 2 or rarely 3 lines long, thick, concave, narrowed at the base. Flowers few, rather large, nearly sessile in the upper axils or about 4 in a loose terminal head, the floral leaves broader and shorter than the others, with thin or scarious margins. Bracteoles fallen off from all our specimens. Calyx-tube nearly 3 lines long, turbinate-campanulate, 10-ribbed, the secondary ribs much widened upwards; lobes orbicular-cordate, about $\frac{3}{4}$ line long, fringed with short cilia. Petals orbicular, about 2 lines diameter, entire. Connective of the anthers thick and ovoid. Staminodia linear-subulate, thickened at the base. Style with a few spreading hairs under the broad stigma. Ovules about 8.—*Decalophium pauciflorum*, Turcz. in Bull. Mosc. 1847, i. 154.

W. Australia, Drummond, 3rd Coll. n. 31.

10. **C. axillare**, F. Muell. Herb. Rigid virgate and somewhat glaucous. Leaves opposite, linear-triquetrous, mostly mucronate, $\frac{1}{2}$ to $\frac{3}{4}$ in. long, atte-

nuate at the base. Flowers few, rather large, on pedicels of $1\frac{1}{2}$ to 2 lines in the upper axils, the floral leaves like the others. Bracteoles already fallen from our specimens. Calyx-tube broadly campanulate, about 3 lines long, not very prominently 10-ribbed; lobes broadly ovate or orbicular, minutely ciliate, 1 to $1\frac{1}{2}$ lines long. Petals not twice as long as the calyx-lobes, orbicular, entire. Connective of the anthers thickened into a small appendage. Staminodia linear-lanceolate, often with a rudimentary anther. Style with a ring of stiff hairs under the stigma.

W. Australia. Gales Brook and Russell Range, *Maxwell*.

SUBTRIBE II. CALYTHRICEÆ.—Stamens indefinite, few or numerous, free, in several rows, the inner ones shorter, without staminodia. Ovules 2, collaterally attached to a filiform placenta, extending from the base to the summit of the cavity. Embryo straight, very shortly divided into 2 small cotyledons at the summit.

7. CALYTHRIX, Labill.

(*Calycothrix*, *Endl.*)

Calyx-tube elongated, usually slender, 10-ribbed, adnate to the ovary at the base or its whole length; lobes 5, spreading, short, with scarious margins, the midrib produced into a long rigid or hair-like awn, or rarely tapering into a shorter point. Petals 5, entire, spreading, deciduous. Stamens indefinite, numerous or rarely 7 to 12, in several rows, the inner ones shorter, deciduous; filaments filiform, quite free; anthers small, versatile; cells parallel, opening in longitudinal slits, connective with a small globular gland-like appendage, rarely thickened or conical and larger than the cells. Ovary 1-celled; ovules 2, collaterally erect, on a filiform placenta attached to the base and to the summit of the cavity, and sometimes continuous with the style. Style filiform, glabrous, with a small capitate stigma. Fruit formed by the lower, usually fusiform, part of the calyx-tube, and usually crowned by the persistent remainder of the calyx. Seed solitary, cylindrical; testa very thin; embryo of the shape of the seed, quite straight, very shortly 2-lobed at the upper end.—Heath-like shrubs. Leaves scattered (not opposite), small, semiterete or 3- or 4-angled or rarely flat and rigid, entire, with occasionally minute hair-like deciduous stipules. Flowers usually shortly pedicellate, solitary in the upper axils, either in terminal leafy heads or more frequently below the ends of the branches. Bracteoles persistent, rigid, continuous with the thickened pedicels, and often united at the base into a turbinate cup, and in the free part overlapping each other and enclosing the base or nearly the whole of the calyx-tube.

The genus is limited to Australia. It has been divided by some according to the presence or absence of stipules, but this character is wholly unavailable in practice. The stipules, when present, are rudimentary only, and so minute and fugacious, that it is often impossible to discover them in some specimens of species where they are occasionally the most conspicuous. Other botanists again have, from the number of stamens, distributed the species into decandrous and icosandrous, or even given in the diagnosis stamens 8, 10, 20 or about 40, but I have found them to vary in this respect in all the species. The majority have above 30 stamens, whilst in the few supposed to be decandrous, the number varies from 7 to about 15, and are not arranged in any regular relation to the sepals and petals, as in the genera

with definite stamens. The colour of the flowers appears to be constant in individual species, yellow in some, pink or lilac in others, white in *C. tetragona*, but not of sufficient importance to be available for sectional grouping. The most tangible character I have found, lies in the shape of the calyx-tube and its relation to the ovary, although it is often difficult to verify it without a careful analysis, and, in habit, the majority of the species are very much alike.

A. *Calyx-tube slender, slightly fusiform and adnate to the ovary below the middle, the upper part slender, terete, solid inside, with a convex disk closing the orifice, on which is inserted the style, usually deciduous as well as the stamens.*

Bracteoles free or scarcely united at the base. Flowers yellow.

Glabrous or minutely pubescent. Leaves oblong, erect. Flowers in dense, terminal, leafy heads. Bracteoles usually as long as the calyx-tube

1. *C. aurea*.

Softly pubescent. Leaves linear, flat or concave. Flowers in terminal heads. Bracteoles acuminate

2. *C. puberula*.

Glabrous. Leaves semiterete or triquetrous. Bracteoles much shorter than the calyx-tube.

Bracteoles acuminate or subulate-pointed

3. *C. flavescens*.

Bracteoles broader upwards, herbaceous and obtuse

4. *C. asperula*.

Bracteoles free or scarcely united at the base. Flowers pink or lilac.

Bracteoles, at the time of flowering, nearly or quite as long as the calyx-tube.

Pubescent. Flowers in terminal heads, the floral leaves lanceolate-villous as well as the bracteoles

5. *C. sapphirina*.

Glabrous. Flowers in leafy spikes, terminal or below the ends of the branches

6. *C. breviseta*.

Bracteoles from the first much shorter than the calyx-tube. Stem and leaves slender.

Slender part of the calyx-tube solid

7. *C. simplex*.

Slender part of the calyx-tube closely enclosing the style, but free from it

22. *C. tenuiramea*.

Bracteoles connate $\frac{1}{2}$ to $\frac{1}{3}$ their length. Flowers pink or lilac.

Hirsute. Floral leaves ovate. Bracteoles loose

8. *C. empetroides*.

Glabrous.

Bracteoles nearly or quite as long as the calyx-tube

9. *C. variabilis*.

Bracteoles much shorter than the calyx-tube.

Leaves oblong-linear, thick, mostly 3 to 4 lines long. Bracteoles forming a loose obovoid-oblong involucre

10. *C. muricata*.

Leaves slender, 2 to 3 lines long. Bracteoles narrow, appressed

11. *C. gracilis*.

Leaves very obtuse and thick, under 2 lines long.

Stamens numerous.

Leaves mostly above 1 line long. Bracteoles broad, forming a loose involucre. Calyx-tube 6 to 8 lines

12. *C. brevifolia*.

Leaves mostly under 1 line. Bracteoles appressed. Calyx-tube 3 to 4 lines

13. *C. brachyphylla*.

Stamens 7 to 15 (usually about 10).

14. *C. Leschenaultii*.

B. *Calyx-tube slender, slightly fusiform and adnate to the ovary below the middle, the upper slender part terete, free, enclosing the base of the style, which is usually persistent, the staminal disk forming a ring round it, but free from it.*

Western species.

Bracteoles connate to about the middle.

Bracteoles under 2 lines, much shorter than the calyx-tube

15. *C. Oldfieldii*.

Bracteoles 4 to 6 lines, nearly as long as the calyx-tube. Flowers lilac

16. *C. glutinosa*.

Bracteoles about 3 lines, rather shorter than the calyx-tube.

Flowers yellow

17. *C. angulata*.

Bracteoles free or scarcely united at the base.

Calyx-tube scarcely exceeding the bracteoles and floral leaves.

Low densely-branched shrub. (Flowers yellow?) 18. *C. depressa*.

Calyx-tube exceeding the bracteoles, but shorter than the floral leaves. Low densely-branched shrub. Flowers pink or lilac 19. *C. tenuifolia*.

Calyx strigose-pubescent or hirsute, the tube more or less exceeding the bracteoles and floral leaves 20. *C. strigosa*.

Calyx glabrous, the tube much longer than the bracteoles and floral leaves.

Leaves thick, 2 to 4 lines long. Connective conical 21. *C. decandra*.

Leaves 2 to 3 lines long. Bracteoles acuminate. Connective small 22. *C. tenuiramea*.

Leaves rarely above 2 lines. Bracteoles obtuse 23. *C. Fraseri*.

Leaves very spreading, thick and very obtuse, all under 1 line 24. *C. granulosa*.

Tropical or eastern subtropical species. Bracteoles much shorter than the calyx-tube, connate, from $\frac{1}{4}$ to $\frac{1}{2}$ their length.

Leaves from under $\frac{1}{2}$ line to about 1 line long, minutely ciliate and usually acute and prominently keeled. Petals narrow, acute 25. *C. microphylla*.

Leaves mostly about 2 lines long, acutely keeled and often minutely ciliate 26. *C. longiflora*.

Leaves slender, semiterete, 2 to 4 lines long, crowded, not ciliate 27. *C. leptophylla*.

Leaves oblong-lanceolate, acute, 4 to 6 lines long, not ciliate 28. *C. megaphylla*.

C. Calyx-tube slender, slightly fusiform and adnate to the ovary below the middle, the upper slender part terete, solid inside, terminating in a short broadly campanulate or turbinate free portion.

Flowers white, usually in terminal leafy heads or short spikes 29. *C. tetragona*.

D. Calyx-tube cylindrical, attenuate at the base, but not contracted above the ovary, the free part scarcely longer than broad.

Bracteoles more than half as long as the calyx-tube. Calyx-lobes short and broad, with a long hair-like awn 30. *C. conferta*.

Bracteoles not half as long as the calyx-tube. Calyx-lobes ovate-lanceolate, acuminate, tapering into a short awn 31. *C. arborescens*.

F. Calyx-tube pubescent, oblong, more or less contracted above the ovary, the free part short; lobes with very short awns or points.

Calyx-tube 2 to $2\frac{1}{2}$ lines long, slightly contracted above the ovary 32. *C. brachychæta*.

Calyx-tube 1 line long, much contracted above the ovary 33. *C. achæta*.

Calyx-tube nearly glabrous, $1\frac{1}{2}$ lines long, slightly contracted above the ovary. Leaves very fine, 2 to 3 lines long 34. *C. laricina*.

1. ***C. aurea*, Lindl. Swan Riv. App. 5. t. 3 B.** Erect, rather stout and rigid, not much branched, glabrous or minutely pubescent. Leaves erect or rarely spreading, elliptical-oblong or the floral ones ovate-lanceolate, thick, concave, obtuse, mostly 3 to 4 lines long, more or less ciliate on the edges and midrib, or rarely quite glabrous. Flowers yellow, nearly sessile in dense terminal leafy heads. Bracteoles 3 to 5 lines long, free, narrow, acutely keeled, broader upwards and tapering to a fine point. Calyx-tube rarely exceeding the bracteoles and often shorter, the lower fusiform portion 3-angled, the upper slender part solid; lobes short, broad, with spreading awns much longer than the petals. Petals obtuse, 3 to $3\frac{1}{2}$ lines long. Stamens numerous; connective gland globular. Style inserted on the staminal disk, deciduous.—Schau. Myrt. Xeroe. 106, and Pl. Preiss. i. 107.

W. Australia. Swan River, Drummond, 1st Coll.; sandy plains, Canning river, Preiss, n. 184.

2. **C. puberula**, *Meissn. in Journ. Linn. Soc. i. 48*. Much smaller than *C. aurea*, erect, much branched, softly pubescent or villous. Leaves linear, rather flat, but the midrib very prominent underneath and often above also, obtuse or mucronulate, 2 to 3 lines long, the floral ones scarcely larger. Flowers yellow, nearly sessile in the upper axils, but not in such compact heads as in *C. aurea*. Bracteoles free, narrow, hirsute, acuminate or mucronulate, about 3 lines long. Calyx-tube rather longer, fusiform and obscurely triangular, the slender upper portion short, solid; lobes obovate, with an awn not twice as long as the petals. Petals rather obtuse, about 3 lines long. Stamens numerous; connective-gland prominent. Style inserted on the staminal disk, deciduous.

W. Australia. Between Moore and Murchison rivers, *Drummond, 6th Coll. n. 51*.

3. **C. flavescens**, *A. Cunn. in Bot. Mag. under n. 3323*. Rather slender, often under 1 ft. high and simple or nearly so, and from that to above 2 ft. and more or less branched, usually glabrous. Leaves linear-triquetrous and slender, or the floral ones lanceolate and flat, obtuse or scarcely mucronulate, mostly 3 to 4 lines long in the normal form. Flowers yellow, nearly sessile in the upper axils, forming ovoid or oblong terminal leafy spikes, rarely lateral by the elongation of the shoots, or a few short branches forming a compact corymb. Bracteoles free, narrow, 3 to 4 lines long, keeled, and tapering into a fine awn-like point. Calyx-tube 6 to 8 lines long, slightly fusiform and 3- or 5-angled below the middle, the slender upper portion solid inside; lobes 1 to $1\frac{1}{2}$ lines long, truncate or shortly acuminate with an awn 2 or 3 times the length of the petals. Petals obtuse, 3 to $3\frac{1}{2}$ lines long. Stamens numerous; connective-gland globular. Style inserted on the staminal disk, deciduous.—*Schau. Myrt. Xeroc. 105*, and in *Pl. Preiss. i. 106*; *Field. and Gardn. Sert. Pl. t. 38* (the analysis not correct); *C. luteola, Schau. in Pl. Preiss. i. 106*.

W. Australia. Swan River, *Drummond, 1st Coll. ; 2nd Coll. n. 52 ; Preiss, n. 186, 187, 193*; Moore river, *Oldfield*; Kojouerup and Tone river, *Marwell*.

Var. *Drummondii*. Stouter and more rigid in all its parts. Leaves crowded, 4 to 6 lines long. Flowers rather larger and more numerous below the ends of the branches.—*C. Drummondii*, *Meissn. in Journ. Linn. Soc. i. 47*. Between Moore and Murchison rivers, *Drummond, 6th Coll. n. 52*.

Var. *tenella*. Apparently diffuse and slender. Flowers smaller and more distant. Bracteoles less pointed.—*C. tenella*, *Meissn. in Journ. Linn. Soc. i. 47*. Between Moore and Murchison rivers, *Drummond, 6th Coll. n. 55*. This appears to me rather an etiolated form than a distinct race.

Var. *curtophylla*. Leaves short and not very slender, mostly spreading. Flowers rather small. Bracteoles short and narrow. *C. curtophylla*, *A. Cunn. in Bot. Mag. under n. 3323*, not of *Schauer*. Swan River, *Fraser*, and southern districts, *Baxter*.—*C. tetragonophylla*, *Meissn. in Journ. Linn. Soc. i. 47*, from Moore and Murchison rivers, *Drummond, 6th Coll. n. 54*, only differs from this form in a very slight pubescence on the branches and upper leaves.

Amongst all the above forms this species is readily recognized by the bracteoles always finely acuminate, as in *C. simplex* and in *C. tenuiramea*, both of which have pink or lilac flowers.

4. **C. asperula**, *Schau. in Pl. Preiss. i. 106*. Loosely branched and quite glabrous, 1 to 3 ft. high. Leaves more or less spreading, linear or linear-oblong, obtusely triquetrous, rather thick, very obtuse, 1 to 2 lines or

rarely longer. Flowers pale yellow, nearly sessile below the ends of the branches. Bracteoles free, about 2 lines long, narrowed at the base, broader and herbaceous upwards, obtuse or with a short spreading point. Calyx-tube 4 to 5 lines long, slightly fusiform and angular below the middle, the slender upper portion solid inside; lobes broadly obovate, the long awn dilated towards the base. Petals 3 to $3\frac{1}{2}$ lines long, rather acute. Stamens numerous; anthers small, didymous, the cells opening deeply in 2 valves; connective-gland small. Style inserted on the staminal disk, deciduous.

W. Australia. Sandy and stony places, King George's Sound, and to the eastward towards Cape Riche, W. Mount Barren, etc., *Baxter*, *Preiss*, n. 194, *Oldfield*, *Maxwell*; Swan River (?), *Drummond*, 1st Coll. The bracteoles distinguish this species from all others independently of the colour of the flowers, yellow.

Var. *gracilis*. Leaves slender, flowers small, *Baxter* (*Herb. R. Br.*).

5. **C. sapphirina**, *Lindl. Swan Riv. App.* 5. Erect and nearly simple when first flowering, growing into a straggling shrub of 2 to 3 ft. more or less pubescent. Leaves usually spreading, linear-triquetrous, obtuse or mucronate, 2 to 3 or rarely 4 lines long, the floral ones often lanceolate acuminate and softly villous. Flowers pink or purple, nearly sessile in dense terminal globular or ovoid leafy heads. Bracteoles free, 3 lines long or rather more, keeled, scarious but softly pubescent. Calyx-tube at first scarcely exceeding the bracteoles, but lengthening to about 5 lines, fusiform and pubescent below the middle, the slender upper portion glabrous and solid; lobes truncate with fine awns longer than the petals, and minutely ciliate. Petals about 2 lines long. Stamens numerous; connective-gland small. Style inserted on the staminal disk, glabrous.—*Schau. Myrt. Xeroc.* 103, and in *Pl. Preiss.* i. 105; *C. lasiostachya*, *F. Muell. Fragm.* i. 224.

W. Australia. Swan River, *Drummond*, 1st Coll. and 2nd Coll. n. 154; *Preiss*, n. 189; Murchison river, *Oldfield*.

6. **C. breviseta**, *Lindl. Swan Riv. App.* 5. Glabrous with erect and virgate or spreading and branched stems. Leaves erect or spreading, linear, semiterete or triquetrous, obtuse or mucronate, 2 to 3 lines long, usually rather slender, the floral ones scarcely broader. Flowers pink or lilac, nearly sessile in the upper axils, but mostly below the ends of the branches. Bracteoles free, rather firm and brown, smooth or more or less glandular-muricate, about 3 lines long. Calyx-tube rarely exceeding the bracteoles, fusiform below the middle, the slender upper portion solid; lobes broad, about a line long, the hair-like awn rather longer than the petals, often minutely ciliate. Petals acute, about 4 lines long. Stamens numerous; connective-gland small. Style inserted on the staminal disk, deciduous.—*Schau. Myrt. Xeroc.* 99; *C. cuspidata*, *Turez. in Bull. Mosc.* 1847, i. 162 (from the descr.).

W. Australia. Swan River, *Drummond*, 1st Coll., 5th Coll. n. 115.—This has the habit and large bracteoles of *C. variabilis*, but they are free almost or quite to the base. The name is not very appropriate.

7. **C. simplex**, *Lindl. Swan Riv. App.* 5. Glabrous or slightly pubescent, simple, erect, and under 6 in., or taller, with slender spreading branches, as in *C. tenuiramea*. Leaves rather slender, semiterete or triquetrous, 3 to 4

lines long. Flowers pink or lilac, on very short pedicels; axillary below the ends of the branches. Bracteoles free or scarcely united at the base, about 2 lines long, acuminate or almost awned like those of *C. flavescens*. Calyx-tube about 4 lines long, fusiform below the middle, the slender upper portion solid; lobes short, acute, with fine awns slightly dilated at the base and exceeding the petals. Petals about 3 lines long, obtuse. Stamens numerous; the connective small and globular, or in the inner stamens larger and more prominent. Style inserted on the staminal disk, glabrous.—Schau. Myrt. Xeroc. 101, and in Pl. Preiss. i. 105.

W. Australia. Swan River, *Drummond*, 1st Coll.; stony hills, Tweed river, *Oldfield*; near Albany, *Preiss*, n. 199, whose specimens, however, I have not seen.—The simple tufted stems which suggested the specific name are by no means constant. The species often assumes the aspect of *C. tenuiramea*, of which it has also the bracteoles, but I never find the style penetrating into the calyx-tube as in that species. *C. simplex* is also very near *C. flavescens*, differing chiefly in the colour of the flowers.

8. **C. empetroides**, *Schau. Myrt. Xeroc.* 102, and in *Pl. Preiss.* i. 105. Low, diffuse or prostrate, much branched, pubescent or hirsute. Leaves oblong-linear, spreading, obtuse or scarcely mucronate, rarely above 2 lines long, the midrib prominent underneath, the floral ones usually ovate and more hirsute. Flowers nearly sessile in the upper axils, or below the ends of the branches. Bracteoles membranous, obtuse, hirsute, connate above the middle into a loose involucre, about $1\frac{1}{2}$ lines long. Calyx-tube about $2\frac{1}{2}$ lines long, slightly hirsute, fusiform below the middle, the slender upper portion solid; lobes broad, almost acute, the hair-like awn minutely ciliate and about as long as the petals. Petals (pink or lilac) about 3 lines long. Stamens numerous; anthers small, with a globular gland-like connective. Style inserted on the staminal disk, deciduous.

W. Australia, *J. S. Roe*; gravelly sides of Mount Bakewell, *Preiss*, n. 195.

C. ciliata, Turcz. in Bull. Mosc. 1847, i. 161, which I have not seen, is probably, from the description given, a variety of *C. empetroides* with narrower leaves.

9. **C. variabilis**, *Lindl. Swan Riv. App.* 5. Quite glabrous, branches usually erect and virgate, sometimes loosely spreading. Leaves linear-triangular and slender, 3 to 6 lines long, or thickly linear-oblong and 2 to 3 lines long, those of the flowering branches often much shorter and broader than the others. Flowers (pink or lilac) on very short pedicels in the upper axils below the ends of the branches. Bracteoles 3 to 4 lines long, connate from $\frac{1}{4}$ to nearly $\frac{1}{2}$ their length, broader upwards, acuminate, the midrib scarcely prominent. Calyx-tube rarely exceeding the bracteoles, slightly fusiform below the middle, the slender upper portion solid; lobes tapering into a slender awn, exceeding the petals and often minutely ciliate. Petals about 3 lines or sometimes nearly 4 lines long, rather acute. Stamens numerous; connective-gland rather large. Style inserted on the slightly concave staminal disk.—Schau. Myrt. Xeroc. 100, and in Pl. Preiss. i. 105.

W. Australia. Swan River, Darling range and neighbourhood, *Collie*, *Drummond*, 1st Coll. n. 157; *Preiss*, n. 197, *Oldfield*.

10. **C. muricata**, *F. Muell. Fragm.* i. 224. Quite glabrous, the branches erect, rigid, and rather stout. Leaves linear or linear-oblong, thick, triquetrous or keeled, obtuse, mostly 3 to 4 lines long, the floral ones and a

few at the base of the shoots often shorter, ovate or ovate-lanceolate. Flowers pink, on stout pedicels of 1 or even 2 lines in the upper axils below the ends of the branches. Bracteoles firm, attaining 3 or 4 lines, connate to about the middle, usually glandular-muricate. Calyx-tube fully $\frac{1}{2}$ in. long, and often lengthening to nearly $\frac{3}{4}$ in., slightly fusiform below the middle, the upper slender portion solid; lobes broad, nearly $1\frac{1}{2}$ lines long, shortly tapering into very long fine awns. Petals rather broad, above 3 lines long. Stamens numerous. Style inserted on the convex staminal disk, deciduous.

W. Australia. Sandy places, Murchison river, *Oldfield*.—In the ripe fruit the upper portion of the calyx usually falls off, leaving only the fusiform portion enclosing the seed and included in the bracteoles.

Var. *parvifolia*. Leaves mostly under 2 lines. Murchison river, *Oldfield*.

11. **C. gracilis**, *Benth.* Glabrous and very heath-like, with rather slender, short, but virgate branches. Leaves linear, slender, semiterete, erect, obtuse, 2 to 3 lines long or rather more. Flowers (pink or purple) shortly pedicellate in the upper axils. Bracteoles narrow, connate to about the middle, appressed on the calyx-tube, about 2 lines long, obtuse, with the midrib produced into a short point, smooth. Calyx-tube very slender, about 4 lines long, slightly fusiform below the middle, the slender upper portion solid; lobes broad, about 1 line long, shortly acuminate, with a fine awn scarcely exceeding the petals. Petals about 3 lines long, acute. Stamens numerous; anthers small. Style inserted on the convex staminal disk, deciduous.

W. Australia. Murchison river, *Oldfield*.—Allied to *C. muricata*, but the slender leaves, smaller flowers, narrow smooth bracteoles, and slender calyx-tube, give it a very different aspect.

12. **C. brevifolia**, *Meissn. in Journ. Linn. Soc. i. 46.* Possibly a larger, stouter variety of *C. brachyphylla*. Leaves spreading or almost reflexed, oblong-triquetrous or almost ovate, thick, very obtuse, 1 to $1\frac{1}{2}$ lines long or rarely more. Flowers (pink?) on turbinate or clavate pedicels of 1 to 2 lines below the end of the branches. Bracteoles about 3 lines long, connate to near the middle, the free part broadly cordate-ovate, shortly acuminate, forming a loose involucre. Calyx-tube 6 to 8 lines long, shortly fusiform and very obtusely ribbed below the middle, the very slender upper portion solid; lobes broad, truncate, with a fine awn much longer than the petals. Petals nearly 4 lines long. Stamens numerous; connective-gland small. Style inserted on the staminal disk, deciduous.

W. Australia. Between Moore and Murchison rivers, *Drummond*, 6th Coll. n. 58.

13. **C. brachyphylla**, *Turcz. in Bull. Mosc. 1847, i. 161.* Quite glabrous and much branched. Leaves imbricate or spreading, ovate to oblong-linear, very thick and obtuse, rarely exceeding 1 line and often not above $\frac{1}{2}$ line long. Flowers (pink or lilac) rather small, nearly sessile in the upper axils, either forming short terminal leafy corymbs or all below the ends of the branches. Bracteoles about $1\frac{1}{2}$ to nearly 2 lines long, connate to near the middle, much closer round the calyx than in *C. brevifolia*, rather firm, smooth or glandular-muricate. Calyx-tube slender, 3 to 4 lines long, fusiform below the middle, the slender portion solid; lobes short, truncate,

almost emarginate, the awn hair-like, minutely ciliate, shortly exceeding the petals. Petals $2\frac{1}{2}$ to 3 lines long, acute. Stamens numerous; anthers small, the connective-gland small in the outer stamens, larger and almost conical in the inner ones. Style inserted on the staminal disk, deciduous.

W. Australia. Swan River, *Drummond*, 1st Coll. n. 156, *Gilbert*; Murchison river, *Oldfield*; in the interior, *J. S. Roe*; common about King George's Sound, *Alilne*; eastward to Cape Arid, *Marwell*; Moannoka, *Walcott*.

14. **C. Leschenaultii**, *Schau.* in *Pl. Preiss.* i. 104. Apparently more erect and less branched than in the last two species, which this one otherwise resembles. Leaves oblong-triquetrous, rather thick, very obtuse, 1 to 2 lines long. Flowers (pink or purple) nearly sessile in the upper axils at or below the ends of the branches. Bracteoles 2 to 3 lines long, connate to near the middle, the free part not very broad, usually shortly mucronate. Calyx-tube 4 to nearly 5 lines long, fusiform below the middle, the very slender upper portion solid; lobes usually truncate, deeply coloured with scarious margins, but sometimes almost tapering into the fine awn, which is much longer than the petals. Petals acutely acuminate, about 3 lines long. Stamens 7 to 10 or rarely more; connective-gland small. Style inserted on the staminal disk, deciduous.—*C. curtophylla*, *Schau.* Myrt. Xeroc. 90, and in *Pl. Preiss.* i. 104 (from the character given), but not of A. Cunn.

W. Australia. Darling range, Gordon river, and near Albany, *Preiss.* n. 191, 192; Kalgan river and Mount Elphinstone, *Oldfield*.—The specimens which I have seen of *C. curtophylla*, *Schau.*, are past flower; they look more like *C. brachyphylla*, but *Schauer* says there are only 8 or 9 stamens. *C. curtophylla*, A. Cunn., is a variety of *C. flavescens*.

15. **C. Oldfieldii**, *Benth.* Very nearly allied to *C. brachyphylla*, with the same habit and foliage, but besides the broader bracteoles, the style is persistent and free within the slender portion of the calyx. Quite glabrous. Leaves oblong-triquetrous, thick and very obtuse, mostly about 1 line long. Flowers (pink?) nearly sessile in the upper axils, more corymbose than is usual in *C. brachyphylla*. Bracteoles $1\frac{1}{2}$ to nearly 2 lines long, connate to about the middle, the free part broad and obtuse. Calyx-tube 4 lines long or rather more, fusiform below the middle, the slender upper portion not quite solid, but leaving a deep narrow cavity round the style; lobes short and broad, with fine awns scarcely exceeding the petals. Petals about 3 lines long, obtuse. Stamens numerous.

W. Australia. S. Hatt river, *Oldfield*.

16. **C. glutinosa**, *Lindl.* *Swan Riv. App.* 5. Erect, with rather stout not much branched stems of 1 to 2 ft. Leaves erect, linear-terete, rather thick, mucronate, $\frac{3}{4}$ to $\frac{1}{2}$ in. long, the floral ones often much shorter, acute, flat and dilated at the base into a short stipule-like lobe on each side. Flowers rather large (purple?), on short pedicels in ovoid terminal heads, or sometimes lateral by the elongation of the shoot. Bracteoles about $\frac{1}{2}$ in. long, connate to the middle, acuminate and almost aristate, keeled, more or less glutinous. Calyx-tube not exceeding the bracteoles at first, but rather longer when in fruit, fusiform below the middle, the upper slender portion free, enclosing the style; lobes usually truncate, the rigid prominent midrib produced into an awn much exceeding the petals. Petals about 4 lines

long. Stamens in some specimens about 10, in others nearly twice as many, inserted round an annular disk; connective-gland small.—Schau. Myrt. Xeroc. 91, and Pl. Preiss. i. 104.

W. Australia. Swan River, *Drummond*, 1st Coll., *Gilbert*; Darling range, *Preiss*, n. 196.

17. **C. angulata**, *Lindl. Swan Riv. App.* 6. Glabrous, the young branches angular. Leaves spreading, mostly linear-triquetrous, rather thick, obtuse, 2 to 3 lines long, but often shorter and broader on the lateral shoots, and a few ovate, concave, keeled, about $1\frac{1}{2}$ lines long. Flowers apparently yellow, shortly pedicellate in the upper axils below the ends of the branches. Bracteoles about 3 lines long, or rather more, united to the middle, enlarged upwards, keeled, somewhat acute or mucronate, smooth or glandular-muricate. Calyx-tube very slender, scarcely exceeding the bracteoles at first, half as long again when in fruit, slightly fusiform below the middle, the slender upper portion free, enclosing the style; lobes truncate, with a long hair-like awn. Petals about 3 lines long. Stamens numerous; connective-gland globular.—*Schau. Myrt. Xeroc.* 104, and in *Pl. Preiss.* i. 106.

W. Australia. Swan River, *Collie*, *Drummond*, 1st Coll. n. 161, *Turner*; Canning river, *Preiss*, n. 185.

18. **C. depressa**, *Turcz. in Bull. Mosc.* 1847, i. 162. Glabrous, very densely branched and under 1 ft. high. Leaves crowded, linear-triquetrous, obtuse or very shortly mucronate, rarely above 2 lines long, rather thick or the floral ones almost lanceolate and concave. Flowers (yellow?) nearly sessile in the upper axils. Bracteoles free, about 3 lines long, keeled, narrowed at the base and shortly tapering into a short point. Calyx-tube rarely exceeding the bracteoles, slightly fusiform below the middle, the upper slender free portion enclosing the style; lobes small, broad, acute, with a fine awn scarcely exceeding the petals. Petals about 3 lines long, acute. Stamens numerous; connective thickened into a conical appendage nearly as long as the cells.

W. Australia, *Drummond*, 3rd Coll. n. 24.

19. **C. tenuifolia**, *Meissn. in Journ. Linn. Soc.* i. 46. Glabrous, with numerous erect branches. Leaves crowded on the smaller branches, erect or slightly spreading, linear, slender, semiterete or triquetrous, obtuse or mucronulate, 3 to 4 lines long in the original form. Flowers (pink?) nearly sessile in the upper axils. Bracteoles free, 2 to $2\frac{1}{2}$ lines long, acuminate. Calyx-tube about 3 lines long, or rarely lengthening to 4 lines in fruit, slightly fusiform below the middle, the upper free portion very slender and enclosing the style; lobes orbicular, about 1 line long, with a fine awn slightly exceeding the petals. Petals acuminate, $2\frac{1}{2}$ to 3 lines long. Stamens numerous; connective-gland small.

W. Australia. Murchison river, *Oldfield*, *Drummond*, 6th Coll. n. 57.

Var. rigidior. Stonter, leaves more rigid and rather longer; flowers rather larger.—*C. rosea*, *Meissn. in Journ. Linn. Soc.* i. 46.—*Drummond*, 6th Coll. n. 56.

20. **C. strigosa**, *A. Cunn. in Bot. Mag. under n.* 3323. A low bushy shrub, more or less pubescent, or quite glabrous except the flowers. Leaves erect or spreading, linear-oblong, rather thick, subterete or triquetrous, obtuse,

1 to 2 lines long, the floral ones sometimes broadly oblong or ovate and concave. Flowers (pink or lilac?) nearly sessile at or below the ends of the branches, forming sometimes a dense leafy corymbose panicle. Bracteoles free, 2 to nearly 4 lines long, cuneate, obtuse or scarcely acuminate. Calyx-tube slender, pubescent or hirsute, 4 to 6 lines long, slightly fusiform below the middle, the upper slender free portion enclosing the style; lobes ovate-lanceolate at the base, gradually tapering into shortly plumose awns not much exceeding the petals. Petals 3 to 5 lines long. Stamens numerous round a distinct annular disk; connective-glands small.—Schau. Myrt. Xeroc. 108; *C. lasiantha*, Meissn. in Journ. Linn. Soc. i. 46.

W. Australia. Sharks-Bay and Dirk Hartog's Island, *A. Cunningham*; Murchison river, Champion Bay, *Drummond*, n. 158, 3rd Coll. n. 178, and 6th Coll. n. 53, *Oldfield*, *Walcott*, and others.

21. **C. decandra**, *R. Br. Herb.*; *DC. Prod.* iii. 208. Small, erect, and quite glabrous. Leaves crowded, linear, triquetrous or concave, acute or obtuse, rather thick, 2 to 3 or rarely 4 lines long. Flowers large, pink, on short thick pedicels in the upper axils. Bracteoles free, rather narrow, acuminate, about 4 lines long. Calyx-tube 6 to 7 lines long when in flower, still longer afterwards, slightly fusiform below the middle, the long slender upper portion free and enclosing the style; lobes scarious, shortly tapering into the long awn, not at all ciliate. Petals acuminate, fully 5 lines long. Stamens about 10, very unequal; connective thick and obliquely conical, larger than the cells, with a small globular gland in a dorsal cavity.—*C. Candolleana*, Schau. Myrt. Xeroc. 92; *C. conunthera*, F. Muell. Fragm. i. 146.

W. Australia. Lucky Bay, *R. Brown*, *Barter*; Eyre's Range, M'Callum's Inlet, Stokes Inlet, E. Mount Barren, *Maxwell*.

22. **C. tenuiramea**, *Turcz. in Bull. Mosc.* 1849, ii. 20. Glabrous, with slender divaricate branches, from under 1 ft. to 2 ft. high. Leaves not crowded, semiterete or triquetrous, obtuse or scarcely mucronate, from under 2 to above 3 lines long. Flowers (pink or lilac) on short axillary pedicels below the ends of the branches. Bracteoles free or shortly united at the base, rather narrow, acuminate or almost awned, 2 to $2\frac{1}{2}$ lines long. Calyx-tube 3 to $3\frac{1}{2}$ lines long, slightly fusiform below the middle, the upper very slender portion apparently solid but not quite so, leaving a very narrow cavity in which the style is free; lobes small, acute, the long rigid awn dilated at the base, fine at the end. Petals rather acute, 3 to $3\frac{1}{2}$ lines long. Stamens numerous; connective gland small.

W. Australia, *Drummond*, 4th Coll. n. 50; towards Cape Riche, *Harvey*; sandy plains, Cape Riche, Gordon river, and near Mount Barker, *Maxwell*. Except in the style free within the calyx-tube, this species much resembles the slender branching forms of *C. simplex*. The so-called stipules are sometimes very conspicuous.

23. **C. Fraseri**, *A. Cunn. in Bot. Mag. under n.* 3323. Quite glabrous. 1 to 2 ft. high, with spreading branches. Leaves spreading or recurved, oblong or linear, keeled or triquetrous, obtuse, rather thick, rarely above 2 lines long. Flowers few in the upper axils below the ends of the branches, rather large, lilac or purple. Bracteoles free, not 2 lines long, narrow-cuneate, very obtuse. Calyx-tube about $\frac{1}{2}$ in. long, slightly fusiform below

the middle, the long slender upper portion free, enclosing the style; lobes truncate, with very fine hair-like awns. Petals very acute, about 4 lines long. Stamens numerous; connective-gland globular.—Schau. Myrt. Xeroc. 98, and in Pl. Preiss. i. 105.

W. Australia. Swan River, *Fraser, Drummond*, 1st Coll., 2nd Coll. n. 159, *Preiss*, n. 190, 198; Murchison river, *Oldfield*.

24. **C. granulosa**, *Benth.* Scrubby, glabrous, with tortuous divaricate branches. Leaves very spreading, oblong or ovate, thick and very obtuse, all under 1 line long. Flowers (pink?) on slender pedicels of nearly 1 line, below the ends of the branches. Bracteoles quite free, linear-cuneate, very obtuse, scarcely $1\frac{1}{2}$ line long. Calyx-tube 3 or at length nearly 4 lines long, slightly fusiform below the middle, the upper free portion as long and scarcely more slender, enclosing the style and slightly dilated at the mouth; lobes small, truncate, with fine awns much longer than the petals. Petals about $2\frac{1}{2}$ to 3 lines long, obtuse. Stamens numerous; connective-gland small, globular.

W. Australia. Murchison river, *Oldfield*. This has some resemblance with *C. brachyphylla*, but is more rigid and scrubby, and the bracteoles and calyx are quite different.

25. **C. microphylla**, *A. Cunn. in Bot. Mag. under n. 3323*. A tall shrub, or, on banks of streams, a small tree, with numerous small branchlets covered with imbricated leaves, as in *C. arborescens*. Leaves thick and triquetrous, from under $\frac{1}{2}$ line long and almost obtuse, to above 1 line long and acute, more or less ciliate with very short rigid hairs, or when luxuriant quite glabrous. Flowers (of a rich red?) on thick pedicels of about a line in the upper axils of the short branchlets, forming showy corymbose or oblong leafy panicles. Bracteoles about 2 lines long, setaceous-acuminate, connate at the base. Calyx-tube scarcely 3 lines long when first flowering, but lengthening to 5 lines, slightly fusiform below the middle, the slender upper portion free, enclosing the style; lobes ovate, acuminate, with hair-like awns from half the length of, to longer than the petals. Petals narrow, acute, 4 to 5 lines long. Stamens numerous; connective-gland small.—Schau. Myrt. Xeroc. 89; *C. exstipulata*, DC. Prod. iii, 208, according to Schauer; *C. cupressifolia*, A. Rich. Sert. Astrol. 41. t. 16 (*C. cupressoides*, A. Rich. l. c. 43).

N. Australia. Glenelg river and Roebuck Bay, N. W. Coast, *Marten*; Victoria river and Arnhem's Land, *F. Muell*; Mcville Island (not Port Macquarrie), *Fraser*; islands of the Gulf of Carpentaria, *R. Brown*; exposed cliffs of Port Essington, *A. Cunningham*, *Armstrong*.

Var. ? *longifolia*. Leaves less imbricate, 1 to $1\frac{1}{2}$ line long, mucronate, ciliolate; bracteoles short, calycine awns longer than the petals.—*M. Douall Stuart's Expedition*, lat. $17^{\circ} 43'$.—These small specimens seem almost to connect this species with the following.

26. **C. longiflora**, *F. Muell. Fragm. i. 12*. A tall handsome shrub, quite glabrous. Leaves oblong-linear or cuneate, obtuse or shortly mucronate, $1\frac{1}{2}$ to 2 lines long, or nearly 3 lines on luxuriant shoots, rigid with acute denticulate-ciliate margins, and a very prominent acute keel. Flowers large (pink?) on short thick pedicels, in the axils of small floral leaves, forming terminal heads on the short branchlets. Bracteoles about $1\frac{1}{2}$ lines long, connate at the base, truncate and finely mucronate. Calyx-tube attaining 6

lines, cylindrical, the adnate portion scarcely fusiform, the upper free portion about as long, not more slender, enclosing the style; lobes short, broad, with long hair-like awns. Petals acute, 4 to 5 lines long. Stamens very numerous; connective-gland small.

Queensland. In the interior, *Mitchell*; Suttor river, *F. Mueller*.

27. ***C. leptophylla*, Benth.** Quite glabrous. Leaves crowded on the short branchlets, slender, linear, semiterete or triquetrous, obtuse or scarcely mucronate, mostly about 2 lines. Flowers (pink?) nearly sessile in the upper axils, much smaller than in *C. longiflora*, but otherwise similar. Bracteoles connate below the middle, acutely acuminate, about 2 lines long. Calyx-tube slender, about 4 lines long, the lower portion scarcely fusiform, the upper cylindrical portion free, enclosing the style. Petals and stamens not seen.

Queensland. Newcastle Range, *F. Mueller*; a single specimen snatched in breaking through the scrub and communicated under the name of *C. tenuifolia*, which is now, however, preoccupied by a species of Meissner's. It is evidently very near *C. longiflora* and *C. microphylla*, but can scarcely be considered as conspecific with either.

28. ***C. megaphylla*, F. Muell. Fragm. i. 146.** Quite glabrous. Leaves linear-oblong or lanceolate, acute, narrowed at the base, the larger ones fully $\frac{1}{2}$ in. long, coriaceous, somewhat concave, slightly keeled, the margins not ciliate. Flowers large (deep pink?) nearly sessile in the upper axils. Bracteoles about 3 lines long, shortly connate at the base, acuminate, with long fine points. Calyx-tube fully 8 lines long, slightly fusiform below the middle, the upper portion scarcely more slender, free, enclosing the style; lobes broadly obovate, with awns exceeding the petals. Petals 4 to 5 lines long. Stamens numerous.

N. Australia. M'Adam Range, *A. C. Gregory*. Differs from *C. longiflora* chiefly in the foliage, but the specimens are few and small.

29. ***C. tetragona*, Labill. Pl. Nov. Holl. ii. 8. t. 146.** An elegant shrub, usually of 2 or 3 ft. but sometimes drawn up to a much greater height, glabrous pubescent or hirsute with short rigid hairs, the branches virgate or spreading. Leaves erect or spreading, linear, triquetrous or convex underneath, obtuse or mucronulate, mostly 2 to 3 lines long, or when luxuriant nearly twice as long, the stipules which have been chiefly observed in this species so minute and deciduous as to be rarely seen. Flowers white or pink, nearly sessile in the upper axils, forming dense terminal short or oblong leafy heads, becoming lateral by the elongation of the shoots, especially in poor cultivated specimens. Bracteoles free, scarious, keeled, about 2 lines long. Calyx-tube about 2 lines at the time of flowering, lengthening out to 4 lines or even more, the lower portion fusiform, produced into a long slender solid neck or stipes to the short campanulate or turbinate free part; lobes ovate, with fine awns longer than the petals. Petals obtuse, about 2 lines long. Stamens usually above 20; connective gland small. Style inserted on the summit of the solid neck of the calyx.—*F. Muell. Fragm. iv. 36*; *C. glabra*, R. Br. in Bot. Reg. t. 409; Lodd. Bot. Cab. t. 586; Hook. f. Fl. Tasm. i. 127; *C. glabra*, *C. tetraptera*, and *C. scabra*, DC. Prod. iii. 208; Mem. Myrt. t. 1; *C. ericoides*, A. Cunn. in Field, N. S. Wales, 350;





C. virgata, A. Cunn. in Bot. Mag. t. 3323; *C. brunioides*, A. Cunn. in Bot. Mag. under the same n.; *C. Billardieri*, *C. virgata*, *C. scabra*, and *C. brunioides*, Schau. Myrt. Xeroc. 93 to 97; *C. Brownii*, Schau. l. c. 108, and probably *C. Baueri*, Schau. l. c. 109; *C. pubescens*, Sweet in G. Don, Gen. Syst. ii, 811; *C. Behriana*, Schlecht. Linnæa, xx. 650; *C. Schlechtendahlia*, *C. rosea*, *C. leucantha*, *C. squarrosa*, *C. monticola*, and *C. Muelleri*, Miq. in Nederl. Kruidk. Arch. iv. 116 to 119.

N. S. Wales. Port Jackson to the Blue Mountains, *R. Brown*, *Sieber*, n. 285, and others, and in the interior on the Macquarrie, Lachlan, Darling, Murrumbidgee, etc., *A. Cunningham*, *F. Mueller*, and others.

Victoria. Common in the desert tracts on the Murray and Wimmera, ascending in the Australian Alps to 4000 ft., *F. Mueller*.

Tasmania. Sandy places and rocky coasts, frequent, sometimes growing in water and then very tall, *J. D. Hooker*.

S. Australia. From Spencer's and St. Vincent's Gulf, and Kangaroo Island to the Murray, *F. Mueller*, *Whittaker*, and others.

W. Australia. King George's Sound and neighbouring districts, and eastward to the Great Australian Bight, *J. C. Roe*, *Oldfield*, *Maxwell*, *Drummond*, 2nd Coll., n. 46; 3rd Coll. n. 53; 5th Coll. n. 116.

This is undoubtedly a variable species, and individual specimens often exhibit very striking differences, but the numerous species founded upon it have been chiefly distinguished by the degree of pubescence, by the size and direction of the leaves, the length of the calyx-tube, and other characters, often dependent on age, luxuriance, or local circumstances, and which, in the large mass of specimens I have examined, show such insensible gradations that I have in vain sought to class them in distinct varieties by any tangible characters. Amidst all these variations, this species is readily distinguished by the short free part of the calyx always much broader than the neck of the adnate part, although it varies from narrow-campanulate to very broadly turbinate.

30. ***C. conferta***, A. Cunn. in Bot. Mag. under n. 3323. A tall, erect, glabrous shrub, with very numerous small branches. Leaves imbricate, acutely triangular, acute or mucronate, $\frac{1}{2}$ to $\frac{3}{4}$ line long. Flowers (pink?) on short pedicels in the upper axils. Bracteoles connate below the middle, broader upwards, rather firm, obtuse or shortly acuminate, about 2 lines long. Calyx-tube cylindrical, 2 to nearly 3 lines long, attenuate at the base, but not at all above the ovary, the free part scarcely longer than broad; lobes broad, scarcely acuminate, with fine awns about as long as the petals. Petals 3 to 4 lines long, acute. Stamens numerous; connective-gland globular.—Schau. Myrt. Xeroc. 88. t. 6 B.

N. Australia. Port Keath, Cambridge Gulf, *A. Cunningham*; N. W. Coast, *Bynoe*. Near *C. arborescens*, with nearly the same shaped calyx-tube, but the bracteoles and calycine lobes quite different.

31. ***C. arborescens***, *F. Muell.* in Trans. Phil. Inst. Vict. iii. 42. A tall shrub or small tree, with exceedingly numerous short slender branchlets covered with the imbricate scale-like leaves like those of a tamarisk. Leaves ovate-lanceolate, concave, prominently keeled, scarcely $\frac{1}{2}$ line long, glabrous. Flowers (white?) on thickened pedicels of about 1 line in the upper axils. Bracteoles connate at the base, acuminate, almost aristate, about 1 line long. Calyx-tube cylindrical but thicker than in most species, about 3 lines long, the free part very short and slightly campanulate; lobes ovate-lanceolate, gradually tapering into a short awn rarely exceeding the petals. Petals about 4 lines long. Stamens numerous; connective-gland globular.

N. Australia. Arnhem's Land, *F. Mueller*; Port Essington, *Armstrong*.

32. **C. brachychæta**, *F. Muell. in Trans. Phil. Inst. Vict.* iii. 43. A much-branched shrub of 6 to 12 ft., more or less pubescent. Leaves crowded or imbricate, linear-triquetrous, obtuse or mucronate, 1 to $1\frac{1}{2}$ or rarely 2 lines long. Flowers (white?) nearly sessile below the ends of the branches. Bracteoles free, deciduous, shortly acuminate or mucronate, about as long as the adnate part of the calyx. Calyx-tube oblong, pubescent or hirsute, 2 to $2\frac{1}{2}$ lines long, much attenuate at the base, the free part nearly as long as the adnate portion, cylindrical or contracted upwards; lobes ovate-lanceolate, acuminate or shortly awned, ciliate, about 2 lines long. Petals scarcely as long. Stamens about 20; connective-gland globular.

N. Australia. Sandstone table land, Arnhem's Land, *F. Mueller*. *F. Mueller's* herbarium comprises also some glabrous specimens from dry stony ridges near the Fitzmaurice River, and others, apparently in an abnormal state, from the Victoria river, with smaller mostly imperfect flowers. The seed in this species is thicker upwards than in most others, but the embryo appears to be the same.

Var. ? *tennifolia*. Habit nearly of *Lhotzkya ericoides*. Leaves slender, triquetrous, densely crowded, 3 to 4 lines long. Islands of the Gulf of Carpentaria, *R. Brown*.

33. **C. achæta**, *F. Muell. in Trans. Phil. Inst. Vict.* iii. 43. Diffuse or prostrate, with numerous short crowded branches, more or less sprinkled with spreading hairs. Leaves imbricate, oblong-linear, triquetrous, obtuse, mostly under 1 line long. Flowers nearly sessile in the upper axils of the numerous flowering branchlets. Bracteoles broad, scarious, truncate, nearly as long as the calyx-tube. Calyx-tube ovoid-oblong, about 1 line long, very hirsute, the free part contracted and almost as long as the adnate portion; lobes ovate or ovate-lanceolate, tapering into a short awn or point almost concealed by the long hairs fringing the lobe. Petals about 1 line long. Stamens about 20; connective almost didymous besides the small globular gland. Seeds solitary and obovoid, or sometimes 2, nearly hemispherical; embryo of the same shape, but apparently straight, homogeneous and obscurely 2-lobed at the top.—*Lhotzkya cuspidata*, *F. Muell. in Hook. Kew Journ.* viii. 324.

N. Australia. Upper Glenelg river, N. W. Coast, *Marten*; Victoria river and gullies, and low stony ridges on Fitzmaurice river, *F. Mueller*. This and the preceding species are evidently closely allied to each other, and notwithstanding the shortness of the calyx-awns and thickness of the embryo (which I have scarcely seen perfect) appear to be better referred to *Calythrix* than to any other genus.

34. **C. laricina**, *R. Br. Herb.* A much-branched shrub, spreading, and scarcely $1\frac{1}{2}$ ft. high in barren open places, attaining 6 or 7 ft. in moist situations. Leaves linear-subulate, slender, triquetrous, mucronate, 2 to 3 lines long, crowded on the smaller branchlets. Flowers small, nearly sessile, crowded below the ends of the branches. Bracts truncate or shortly acuminate, ciliate, much shorter than the calyx-tube. Calyx-tube about $1\frac{1}{2}$ lines long, pubescent or nearly glabrous, the free part scarcely contracted; lobes at first broadly lanceolate, ciliate, not so long as the tube, the short awn scarcely exceeding the cilia, after flowering the lobes are longer and taper into a more prominent awn.

N. Australia. Arnhem's Land and islands of the Gulf of Carpentaria, *R. Brown*.

8. **LHOTZKYA**, Schau.

Calyx-tube elongated, cylindrical or narrow-turbinate, 10- or rarely 5-ribbed; lobes 5, scarious, spreading, short, broad, very obtuse. Petals 5, entire, spreading, deciduous. Stamens indefinite, usually numerous, in several rows, the inner ones shorter, deciduous; filaments filiform, quite free; anthers small, versatile; cells parallel, opening in longitudinal slits, connective terminating in a globular gland-like appendage. Ovary 1-celled; ovules 2, collaterally erect on a filiform placenta attached to the base and to the summit of the cavity. Style filiform, glabrous, with a small capitate stigma. Fruit formed by the lower usually fusiform part of the calyx-tube, and crowned by the persistent remainder of the calyx. Seed solitary, cylindrical, or slightly thickened upwards; testa very thin; embryo of the shape of the seed, quite straight, very shortly 2-lobed at the upper end.—Heath-like shrubs. Leaves scattered or rarely opposite, small, semiterete or 3- or 4-angled, rigid, entire, glabrous or pubescent. Flowers sessile or shortly pedicellate, solitary in each axil along the branches or forming terminal leafy heads. Bracteoles scarious, at least on the margin, the keel often green, persistent, continuous with the rigid pedicel, often united at the base into a turbinate cup, and in the free part overlapping each other, enclosing the base or nearly the whole of the calyx-tube.

The genus is limited to Australia. It is closely allied to *Calythrix*, with which F. Mueller proposes to unite it, but the constant want of any awn or point to the calyx-segments gives it so distinct an aspect that we may be justified in maintaining it as distinct.

Calyx-tube shortly produced above the ovary into a concave disk.

Flowers (pink) small, in terminal heads becoming lateral by the elongation of the shoot.

Quite glabrous. Calyx-tube very narrow-turbinate 1. *L. glaberrima*.

Pubescent. Calyx-tube cylindrical, hirsute 2. *L. genetylloides*.

Calyx-tube adnate to the top.

Calyx-tube narrow-turbinate, pubescent or hirsute.

Leaves scattered. Flowers in terminal heads. Bracteoles broad, villous, very conspicuous 3. *L. violacea*.

Leaves mostly opposite. Flowers lateral. Bracteoles narrow 4. *L. ciliata*.

Calyx-tube after flowering narrowed into a short slender neck. Flowers small, lateral 5. *L. brevifolia*.

Calyx-tube cylindrical, glabrous, or slightly scabrous-pubescent, not narrowed at the top. Flowers violet or purple. Bracteoles broad, obtuse 6. *L. purpurea*.

Flowers white or yellowish. Bracteoles acuminate. Calyx-tube 7- to 10-ribbed, 1 to 1½ lines long. Leaves mostly 3 to 4 lines long 7. *L. ericoides*.

Calyx-tube 5-ribbed, about 2 lines long. Leaves mostly 4 to 6 lines long 8. *L. acutifolia*.

1. ***L. glaberrima***, F. Muell. *Fragm.* i. 13. Small, with slender erect branches and quite glabrous. Leaves scattered, linear or oblong, triquetrous or concave and keeled, obtuse, mostly 1 to 1½ lines long, more or less spreading. Flowers pink, nearly sessile in the upper axils but below the ends of the branches. Bracteoles concave, with green keels, shorter than the calyx-tube. Calyx-tube narrow-turbinate, 10-ribbed at the top, about 1 line long or rather more; lobes orbicular, about ½ line long. Petals oblong,

obtuse, nearly 2 lines long. Stamens numerous, anthers without any conspicuous gland.

S. Australia. Kangaroo Island, *Bannier*.

2. ***L. genetylloides***, *F. Muell. in Trans. Phil. Soc. Vict.* i. 16. Erect and bushy, glabrous pubescent or hirsute with short hairs. Leaves scattered, crowded, spreading, linear or oblong, usually flat above and convex or keeled underneath, obtuse or mucronate, 1 to 2 or rarely nearly 3 lines long. Flowers (pink or white?) on very short pedicels, in small terminal leafy heads rarely becoming lateral by the elongation of the shoot. Bracteoles obovate, slightly ciliate, about as long as the calyx-tube. Calyx-tube oblong, slightly narrowed at the top, 10-ribbed, glabrous or hirsute at the top, about $1\frac{1}{2}$ lines long, slightly produced above the ovary into a concave disk; lobes obovate, $\frac{1}{2}$ to $\frac{3}{4}$ line long. Petals oval-oblong, about 2 lines. Stamens often not above 20. Fruiting-calyx about 2 lines long, 5-angled, the secondary ribs disappearing.—*Genetyllis alpestris*, Lindl. in Mitch. Three Exped. ii. 178.

Victoria. Grampian mountains, *Mitchell, F. Mueller*.

S. Australia. Scrub of the S.E. portion of the colony, *J. E. Woods*.

Var. *bracteosa*. Floral leaves or bracts ovate or orbicular, very prominent as well as the broad bracteoles.—On the Glenelg, *Robertson*.

3. ***L. violacea***, *Lindl. Swan Riv. App.* 7. Erect, bushy, more or less pubescent or hirsute with short hairs. Leaves alternate or scattered, oblong, very obtuse, 2 to 3 lines long, concave above, convex underneath. Flowers (purple?) in the upper axils, forming dense terminal heads, the floral leaves short and broad, the uppermost ones scarious on the edge. Bracteoles obovate, very obtuse, scarious with a herbaceous villous keel and base. Calyx-tube villous, 10-ribbed, narrow-turbinate, tapering to a stalk-like base, adnate to the top; lobes very short and broad. Petals obovate-oblong, nearly 3 lines long. Stamens numerous.—*Schau. Myrt. Xeroc.* 85.

W. Australia. Swan River, *Drummond, 1st Coll. n.* 162; *Gilbert*.

4. ***L. ciliata***, *F. Muell. Herb.* Apparently a small species, with slender erect pubescent branches. Leaves mostly opposite, appressed, oblong-lanceolate or linear, almost acute, concave and obtusely keeled, 1 to $1\frac{1}{2}$ lines long, glabrous except the margin, which is ciliate with short soft hairs. Flowers (purple?) nearly sessile below the ends of the branches. Bracteoles narrow, as long as the calyx-tube, connate to the middle. Calyx-tube narrow turbinate, pubescent, obscurely ribbed, rather above 1 line long; lobes broad, truncate, scarious, about $\frac{1}{2}$ line long. Petals about 2 lines. Stamens numerous.

W. Australia. Oldfield river, Plantagenet and Stirling ranges, *Maxwell*.

5. ***L. brevifolia***, *Schau. in Pl. Preiss.* i. 103. Branches rather slender, erect, virgate, more or less pubescent or rarely glabrous. Leaves scattered, linear, triquetrous or concave and keeled, obtuse, rarely above 2 lines long, glabrous, minutely ciliate or pubescent. Flowers small, nearly sessile along the branches as in *L. ericoides*. Bracteoles free or scarcely cohering at the base. Calyx-tube at first almost concealed by the bracteoles, but after

flowering attaining 2 lines and exceeding the bracts by about half its length, 10-ribbed, more or less contracted at the top into a short slender web; the lobes not longer than the breadth of the tube, broad, truncate, and slightly emarginate. Petals about 2 lines long. Stamens about 20.

W. Australia. Swan River, *Drummond*, 1st Coll. n. 163; *Preiss*, n. 2638; *Turner*. The small flowers and slender neck of the calyx-tube distinguish this from all others. I have not seen *Preiss*'s specimens, but *Schaner*'s description evidently refers to this species.

6. **L. purpurea**, *F. Muell. Fragm.* i. 224. Erect, bushy, 1 to 1½ ft. high, quite glabrous. Leaves scattered, crowded, linear-triquetrous, obtuse, 3 to 4 lines long. Flowers purple, nearly sessile along the branches. Bracteoles shortly united at the base, broad, concave, obtuse, shorter than the calyx-tube. Calyx-tube slender, 2 to 2½ lines long, adnate to the top, 10-nerved and scarcely contracted above the middle, narrower and scarcely above 5-nerved at the base; lobes scarcely ½ line long, broad, truncate, emarginate. Petals above 2 lines long. Stamens numerous.

W. Australia. Sandy hills, Champion Bay, *Oldfield*. Scarcely differs from *L. ericoides*, except in the broader bracteoles and the larger flowers of a different colour.

7. **L. ericoides**, *Schau. in Lindl. Introd. Nat. Syst. ed.* 2. 439. An erect heath-like shrub of 2 to 4 ft., glabrous or slightly scabrous-pubescent. Leaves scattered, rather crowded, linear-triquetrous, slender, obtuse or mucronulate, 3 to 4 lines long. Flowers (white?) nearly sessile along the branches. Bracteoles lanceolate-acuminate, scarcely exceeding the calyx-tube. Calyx-tube glabrous or minutely pubescent, cylindrical, prominently 7- to 10-ribbed, rather more than 1 line long, wholly adnate and not contracted at the top; lobes ovate, obtuse, scarious, about ½ line long. Petals narrow, above 2 lines long. Stamens numerous.—*Schau. Myrt. Xeroc.* 83, and in *Pl. Preiss.* i. 103; *L. scabra*, *Turcz. in Bull. Mosc.* 1862, ii. 324; *L. hirta*, *Regel, Gartenfl.* 1863, 337. t. 415 (from the description and figure).

W. Australia. King George's Sound and adjoining districts, *R. Brown*, *A. Cunningham*, *Drummond*, *Preiss*, n. 222, and others.

8. **L. acutifolia**, *Lindl. Swan Riv. App.* 7. Erect with virgate branches, often pubescent, and with the general habit and characters of *L. ericoides*, but stouter. Leaves scattered, crowded, linear, mucronate, mostly 4 to 6 lines long, rigid and prominently keeled underneath. Flowers (white or yellowish?) nearly sessile along the branches, larger than in *L. ericoides*. Bracteoles as long as the calyx-tube, keeled and acute, but scarcely acuminate. Calyx-tube cylindrical, 5-ribbed, about 2 lines long, wholly adnate and not contracted at the top; lobes not ½ line long. Petals (white or yellowish?) above 3 lines long. Stamens numerous.—*Arn. in Hook. Journ. Bot.* ii. 380. t. 15; *Schau. Myrt. Xeroc.* 84, and in *Pl. Preiss.* i. 103.

W. Australia. Swan River, *Drummond*, 1st Coll.; Mount Melville, near Albany, *Preiss*, n. 224. Possible a variety only of *L. ericoides*.

SUBTRIBE III. THRYPTOMENEÆ.—Stamens 5, 10, or indefinite, free, in one or several rows, without staminodia. Ovules 2, rarely 4 to 10, attached in 2 rows to a placenta either basal or adnate to the side of the cavity or extend-

ing to the summit of the cavity. Embryo where known very thick, with a slender neck inflexed and divided at the end into 2 small cotyledons.

The three genera here included have the habit and embryo of *Bæckea* with the 1-celled ovary of *Euchamælaucieæ*.

9. HOMALOCALYX, F. Muell.

Calyx-tube cylindrical or turbinate, the upper free part short and broad; lobes 5, petal-like, entire, deciduous. Petals 5, entire, deciduous. Stamens indefinite, few or many, free, deciduous, the inner ones shorter, filaments filiform; anthers with two parallel cells opening longitudinally, the connective thickened into a terminal gland. Ovary 1-celled, with 2 ovules on a short basal excentrical placenta. Style filiform, glabrous with a small capitate stigma. Fruit . . . Heath-like glabrous shrubs. Leaves scattered (not opposite), usually crowded, small, entire. Flowers nearly sessile along the branches, solitary in the axils of the leaves. Bracteoles broad, usually persistent.

A small genus, limited to Australia, allied to *Lhotskya* in its petals and stamens, and in some measure to *Thryptomene* in the ovary, differing from both in the deciduous calyx-lobes. The ripe fruit is unknown, but in the farthest advanced state that I have seen there is no tendency to the hardening of the endocarp as in *Thryptomene*.

Leaves linear, mucronate. Calyx-tube cylindrical, lobes and petals acute. Stamens 9 to 15

1. *H. ericæus*.

Leaves oblong-triquetrous, obtuse. Calyx-tube broadly turbinate,

lobes and petals broad, obtuse. Stamens 20 to 30 2. *H. polyandrus*.

1. ***H. ericæus*, F. Muell.** in Hook. *Kew Journ.* ix. 309. A small shrub, erect, with slender virgate branches, or spreading and almost procumbent. Leaves crowded, linear, rigid, acutely triquetrous or concave, mucronate, $\frac{1}{4}$ to $\frac{1}{2}$ in. long. Flowers nearly sessile, or shortly pedicellate in the upper axils. Bracteoles broad, much shorter than the calyx-tube, veined, scarious only at the edges. Calyx-tube oblong-cylindrical, $1\frac{1}{2}$ lines long in flower, longer afterwards, the free part short; lobes lanceolate, acute, about 1 line long, very deciduous. Petals similar to the calyx-lobes, but rather longer. Stamens 9 to 15; anthers small. Ovules 2, collateral, erect on a short basal excentrical placenta, which does not appear to be continued beyond the ovules. Young fruit 1-seeded, enclosed in the enlarged truncate calyx-tube. *Thryptomene homalocalyx*, F. Muell. *Fragm.* iv. 63.

N. Australia. Islands of the Gulf of Carpentaria, *R. Brown*; elevated table-land between the Roper and Limmen Bight rivers; *F. Mueller*.

2. ***H. polyandrus*, F. Muell.** *Herb.* Leaves erect, oblong, triquetrous, very obtuse, $1\frac{1}{2}$ to 2 lines long. Flowers on very short pedicels in the upper axils. Bracteoles persistent, very broad, keeled, scarious, forming a truncate cup enclosing the calyx. Calyx-tube very short, broadly turbinate; lobes orbicular, nearly $1\frac{1}{2}$ lines diameter. Petals about the same, and apparently falling off with them. Stamens 20 to 30, crowded almost into a single row; the filaments all short, but the inner ones still shorter and more inflexed; anthers small with a rather large gland to the connective. Ovary very short and broad in the base of the calyx-tube, with 2 ovules erect on a short basal placenta.—*Thryptomene polyandra*, F. Muell. *Fragm.* iv. 77.

N. Australia (or **Queensland?**). *Leichhardt*, no station given. The specimens are not good, most of the flowers injured or deformed by insects, but the best appear to have the calyx-lobes, petals, and stamens very deciduous, as in *H. ericæus*, leaving a truncate fruiting calyx concealed within the persistent bracteoles.

10. THRYPTOMENE, Endl.

(*Paryphanthe*, *Schau.*; *Astræa*, *Schau.*; *Eremopyxis*, *Baill.*)

Calyx-tube hemispherical turbinate ovoid or shortly cylindrical, aduate to the top or the free part broader; lobes 5, persistent (unless the free part of the calyx falls off), petal-like or scarious, spreading, entire. Petals 5, persistent, usually connivent over the stamens. Stamens 5, alternate with the petals, or 10, often inserted within the margin of the disk; filaments short; anther-cells globular or obovoid, separately inserted on the connective and usually pendulous, either smooth and opening by pores or furrowed and opening by pores or short slits in the furrow. Ovary inferior, 1-celled, the cavity usually small near the top of the calyx-tube, with 2 or rarely 4 ovules on a short basal placenta either excentric or adhering to one side of the cavity, or rarely the cavity occupies the greater part of the tube, with several ovules in 2 rows on a lateral placenta. Style short, glabrous, with a small capitate stigma. Fruit, where known, formed by the hardened but scarcely enlarged base of the calyx crowned by the persistent calyx-lobes and petals; endocarp cartilaginous or hardened, usually globular, indehiscent or separating into 2 cocci open on the inner face, containing either 1 globular or 2 hemispherical or slightly reniform seeds; testa very thin; embryo folded, the radicular end very thick, the other fold much shorter, narrow with ovate cotyledons.—Heath-like glabrous shrubs. Leaves opposite, small, entire. Flowers axillary, solitary, or rarely 2 or 3 in the same axil, small, nearly sessile or pedicellate. Bracteoles 2 under the calyx, scarious or green in the centre, usually small and in many species so deciduous as to be rarely found on the specimens.

The genus is limited to Australia. With the habit of *Bækea*, it has most of the characteristics of the *Chamelauciceæ*, with peculiar anthers. The hardened endocarp appears also to be characteristic, but perfect fruits have only been seen in a very few species, and very frequently the seeds are abortive, although enlarged and converted into a hard granular apparently homogeneous mass. In some species, where the cavity of the ovary is very small and quite at the summit of the calyx-tube, the ovules, although really arising from the base of the cavity, appear as they enlarge into the lower part of the tube to be pendulous, but when examined at the time of flowering I have never found them to be really pendulous as in *Micromyrtus*.

A. Calyx-tube turbinate, 10-ribbed or rarely 5-ribbed. Stamens 10.

- | | |
|---|----------------------------|
| Ovules 6 to 10, in 2 rows on a lateral placenta. Leaves broadly obovate, 1 to 2 lines long | 1. <i>T. mucronulata</i> . |
| Ovules 4 to 6, on a short basal placenta sometimes adhering to one side. Leaves narrow, convex underneath, 1 to 2 lines. | |
| Calyx, free part very short. Filaments twice as long as the anthers. | |
| Calyx-tube 10-ribbed, 1 line diameter | 2. <i>T. australis</i> . |
| Calyx-tube 5-ribbed, $\frac{1}{2}$ line diameter | 3. <i>T. tenella</i> . |
| Calyx, free part as long as the ovary. Filaments short | 4. <i>T. prolifera</i> . |
| Ovules 2, on a short basal placenta. Leaves flat, obovate-oblong, $1\frac{1}{2}$ to 3 lines long. Ribs of the calyx-tube rugose | 5. <i>T. saxicola</i> . |

B. *Calyx-tube broad, slightly turbinate, 15-ribbed. Stamens 10.*

Ovules 2, on a short basal placenta. Leaves broad, thick, scarcely
1 line long 6. *T. Johnsonii*.

C. *Calyx-tube hemispherical or shortly campanulate, rugose and pitted, without prominent ribs.*

Stamens 10. Ovules 2, on a short basal placenta.

Leaves obovate-oblong, flat, $1\frac{1}{2}$ to 3 lines long 5. *T. saxicola*.

Leaves ovate-obovate or oblong, concave, under $1\frac{1}{2}$ lines long.

Flowers nearly sessile, or pedicels under 1 line (except *T. stronglylphylla*).

Calyx-lobes minutely denticulate 8. *T. denticulata*.

Calyx-lobes entire.

Petals about as long as the calyx-lobes 7. *T. racemulosa*.

Petals twice as long as the calyx-lobes.

Leaves keeled, $\frac{1}{2}$ to 1 line long. Flowers nearly sessile

below the ends of the branches 9. *T. backeacea*.

Leaves concave, not keeled, mostly under $\frac{1}{2}$ line, closely

imbricate. Flowers at the ends of the branches, on

pedicels usually as long as the leaves 10. *T. stronglylphylla*.

Leaves narrow. Flowers on slender pedicels of 2 lines or more 11. *T. hyporhytis*.

Stamens 5. Ovules about 6, in 2 rows, on a lateral placenta.

Leaves obovate, thick, less than 1 line 12. *T. Maisonneuvii*.

D. *Calyx-tube ovoid turbinate or cylindrical, not rugose, often ribbed. Stamens 5.*

Calyx-tube ovoid-campanulate, not ribbed, shortly produced above
the ovary. Leaves flat 13. *T. Mitchelliana*.

Calyx-tube cylindrical, ribbed, not produced above the ovary.

Leaves flat. Flowers $1\frac{1}{2}$ to 2 lines long 14. *T. Miqueliana*.

Leaves flat. Flowers very slender, about $1\frac{1}{4}$ lines long 15. *T. micrantha*.

Leaves triquetrous. Flowers slender, $1\frac{1}{2}$ to nearly 2 lines long 16. *T. ericæa*.

Calyx-tube broadly turbinate, prominently ribbed, not produced
above the ovary.

Leaves obovate or broadly oblong, flat. Flowers spreading to 2
lines diameter 17. *T. oligandra*.

Leaves linear-oblong or cuneate, convex underneath. Flowers
not 1 line diameter 17. *T. oligandra*, var. *parviflora*.

1. **T. mucronulata**, Turcz. in *Bull. Mosc.* 1847, i. 156. Branches numerous, slender, virgate. Leaves erect or somewhat spreading, broadly obovate, flat, with the midrib inconspicuous or slightly prominent towards the end, with a small recurved point, 1 to 2 lines long. Flowers solitary in the axils below the ends of the branches, nearly sessile. Bracteoles obovate, concave, very thin. Calyx-tube turbinate, obtusely 10-ribbed, the short free part forming a broad concave disk; lobes spreading to rather less than 2 lines diameter. Petals about as long as the calyx-lobes, connivent. Stamens 10, inserted just within the margin of the disk; filaments short; anther-cells globular, divaricate, the connective-gland half as large as the cells. Ovules 6 to 10, in 2 rows, along a lateral placenta extending from the base to the summit of the cavity of the ovary, which is larger than in most species.

W. Australia, Drummond, 3rd Coll. n. 33.

2. **T. australis**, Endl. in *Ann. Wien. Mus.* ii. 192. Branches slender, erect, virgate. Leaves erect, linear, semiterete or concave, somewhat thickened upwards, with a short fine recurved point rarely wanting, about 2

or rarely 3 lines long. Flowers axillary, on very short pedicels. Bracteoles concave, keeled, very deciduous. Calyx-tube turbinate, 10-ribbed, almost entirely aduate, 1 to $1\frac{1}{2}$ line long; lobes spreading to nearly 3 lines diameter. Petals about as long as the calyx-lobes, very broad, connivent. Stamens 10, inserted within the margin of the disk; filaments filiform, much longer than the anthers; anther-cells nearly globular, furrowed, opening in pores or short slits in the furrows; connective-gland at least half as large as the cells. Ovules 4 or 6, on a short excentric placenta at the base of a small cavity near the top of the calyx-tube. Style short with a broad stigma.—Schau. Myrt. Xeroc. 81. t. 6 A.

W. Australia. E. of New York, *J. S. Roe*; Phillips range and Salt river, *Marwell*.

3. **T. tenella**, *Benth.* Branches virgate, very slender. Leaves erect or spreading, linear, semiterete or concave, slightly thickened upwards, with fine recurved points, as in *T. australis*, but more slender. Flowers axillary, on short pedicels, not half the size of those of *T. australis*, but only seen in fruit. Calyx-tube thin, nearly globular, 5-ribbed, $\frac{1}{2}$ line diameter; lobes spreading to little more than 1 line diameter. Petals not longer, connivent. Stamens all fallen away from the specimens. Endocarp crustaceous, containing 2 hemispherical seeds, or 1 nearly globular and the other small and abortive.

W. Australia, *Drummond*, 5th Coll. Suppl. n. 24.

4. **T. prolifera**, *Turcz. in Bull. Mosc.* 1862, ii. 324. Branches numerous, erect and slender. Leaves erect or slightly spreading, linear or linear-oblong, obtuse or with a short recurved point, 1 to 2 lines long. Flowers on very short pedicels in the upper axils, usually forming a small tuft at the base of the young shoots. Bracteoles small, obovate, concave, narrowed at the base. Calyx-tube turbinate, obtusely 5-ribbed at the base, the free part 10-ribbed and very broad; lobes orbicular, about 1 line broad. Petals about the size of the calyx-lobes. Stamens 10; filaments short; anther-cells globular, divaricate; connective-gland small. Ovary readily separating from the calyx-tube, with 4 ovules on a small erect basal placenta.

W. Australia. Between Moore and Murchison rivers, *Drummond*, 6th Coll. n. 62.

5. **T. saxicola**, *Schau. in Pl. Preiss.* i. 102. Erect with virgate branches, attaining 3 or 4 ft. (rarely diffuse or prostrate?). Leaves obovate-oblong, flat, with the midrib scarcely conspicuous, obtuse or slightly acute, $1\frac{1}{2}$ to 3 lines long. Flowers small, on slender pedicels of 1 to $1\frac{1}{2}$ lines in the upper axils. Bracteoles lanceolate, very deciduous. Calyx-tube not $\frac{1}{2}$ line long, turbinate, irregularly 10-ribbed, with the ribs more or less wrinkled, or entirely wrinkled without distinguishable ribs, the free part very short and broad; lobes broad and very obtuse, about $\frac{1}{2}$ line long. Petals orbicular, nearly 1 line long, connivent. Stamens 10; filaments short; anther-cells pendulous, not furrowed, opening in pores or short slits. Ovary small, near the top of the calyx-tube, with 2 ovules on a short basal placenta. Seeds usually 2.—*Bæckeia saxicola*, A. Cunn. in Bot. Mag. t. 3160; *Astrea saxicola*, Schau. in Linnæa, xvii. 239; *Eremopyxis camphorata*, Baill. Adans. ii. 329 (but not *Bæckeia camphorata*, R. Br.); *Scholtzia decandra*, F. Muell. Fragin. iv. 75.

W. Australia. King George's Sound, and eastward towards Cape Riche, *A. Cunningham*; *Drummond*, 5th Coll. n. 126; *Oldfield*, and others.

6. **T. Johnsonii**, *F. Muell. Fragm.* iv. 77. Erect and densely branched. Leaves obovate-orbicular, thick, with a prominent keel, obtuse or with a small recurved point, rarely 1 line long. Flowers almost sessile in the upper axils. Bracteoles obovoid-orbicular, spreading, nearly flat, scarious, above 1 line long. Calyx-tube broadly turbinate, 15-ribbed; lobes very thin and scarious, broadly orbicular, about $\frac{3}{4}$ line long. Petals^{*} orbicular, about as long as the calyx-lobes. Anther-cells obovoid-globular, pendulous and divergent, opening in terminal pores. Ovules 2, on a very short basal placenta in a small cavity at the top of the calyx-tube. Fruit with a hard globular endocarp enclosing 1 globular or 2 hemispherical seeds.

W. Australia. Probably Murchison river, *Herb. F. Mueller*.

7. **T. racemulosa**, *Turcz. in Bull. Mosc.* 1847, i. 156. Erect and bushy, with very numerous rather slender branches. Leaves obovate, erect, or slightly spreading, thick and concave or keeled, obtuse, 1 to $1\frac{1}{2}$ lines long. Flowers on very short pedicels in the upper axils. Bracteoles small, broad, concave, keeled, spreading, connate at the base. Calyx-tube hemispherical, not keeled, very rugose and pitted; lobes spreading to 2 lines diameter, somewhat enlarged in fruit. Petals rather shorter than the calyx-lobes. Anther-cells obovoid, divergent, deflexed, not furrowed, opening in small terminal pores; connective small. Ovules 2, on a short basal placenta. Seeds 1 or 2 in a hard globular endocarp.

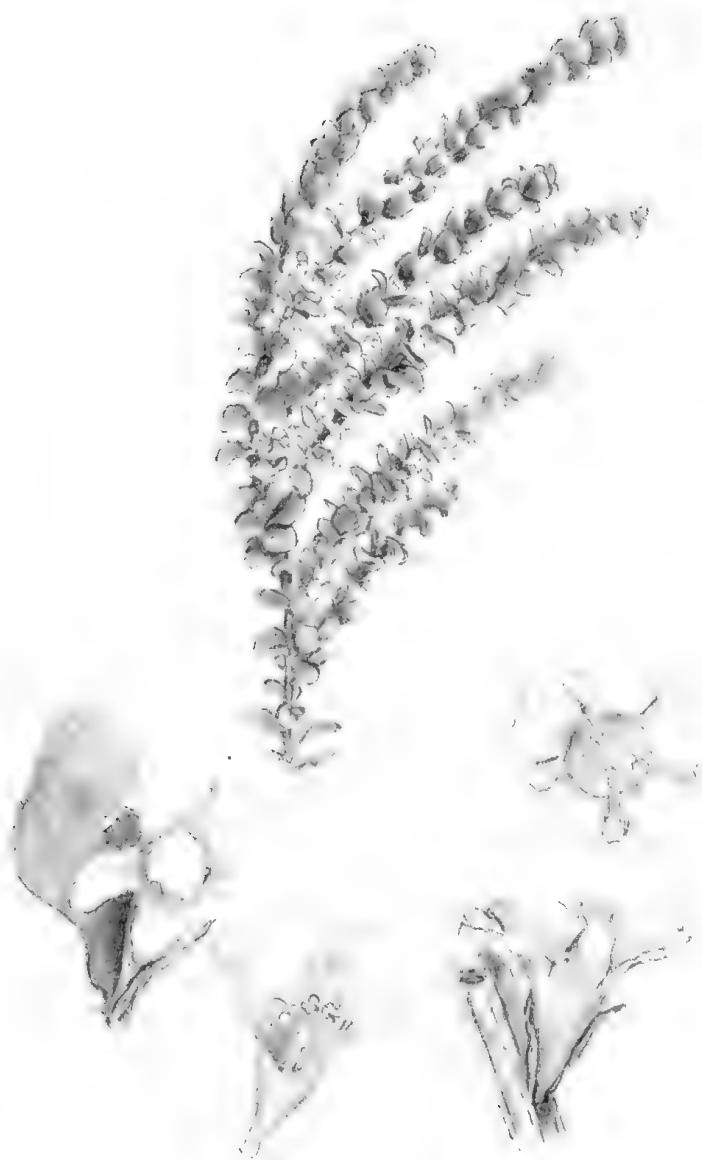
W. Australia, *Drummond*, 2nd Coll. n. 58, 3rd Coll. n. 32.

8. **T. denticulata**, *Benth.* Much branched. Leaves ovate, obovate or almost oblong, thick, concave, keeled, loosely imbricate and decussate on the smaller branches, obtuse, about 1 line long. Flowers shortly pedunculate in the upper axils. Bracteoles ovate or oblong, concave, spreading, usually persistent even after the flowers have fallen. Calyx-tube turbinate or at length hemispherical, rugose; lobes ovate or orbicular, minutely denticulate or almost entire, rather rigid, at least half as long as the petals. Petals nearly $1\frac{1}{2}$ lines long, entire. Stamens 10; filaments very short; anther-cells obovoid, quite distinct, opening in terminal pores; connective-gland small. Ovules 2, on a short basal placenta, adnate to one side of the cavity.—*Scholtzia denticulata*, *F. Muell. Fragm.* iv. 75.

W. Australia. Murchison river, *Oldfield*, *Burgess*. Very nearly allied to *T. bæckeacea*, and perhaps a variety only, with larger less imbricate leaves and larger flowers, the calyx-lobes usually larger in proportion to the petals. Some specimens of *Drummond's* in the 3rd Coll. n. 33, appear almost to connect the two.

9. **T. bæckeacea**, *F. Muell. Fragm.* iv. 65. A very densely branched shrub of 1 to 2 ft. Leaves obovate or oblong, triquetrous, imbricate and decussate on the branchlets, obtuse, rarely 1 line long. Flowers small in the upper axils, nearly sessile or the pedicels shorter than the leaves, usually below the ends of the branches. Bracteoles concave, keeled, green, with only the margins scarious. Calyx-tube broadly turbinate, rugose, not ribbed; lobes petal-like, orbicular, about $\frac{1}{2}$ line long. Petals orbicular, twice as long as the calyx-lobes. Stamens 10, very short; anther-cells obovoid-globular, pen-





Thalictrum flavum L. 2461

Thalictrum

dulous, divergent, opening in small terminal pores; connective-gland small. Ovary very short in the bottom of the calyx-tube, with 2 ovules attached to a lateral placenta.—*Bæckea micrantha*, DC. Prod. iii. 230; Mem. Myrt. t. 14.

W. Australia. Rocky places near the Murchison river, *Oldfield*; Sharks Bay, *Herb. Mus. Par.* (in *Herb. R. Brown and Sonder*).

10. **T. stronglylophylla**, *F. Muell. Herb.* Nearly allied to *T. bæckeacea*, and perhaps a small-variety. Leaves closely imbricate and decussate on the branchlets, orbicular, concave, not keeled, very obtuse, rarely exceeding $\frac{1}{2}$ line diameter, the floral ones smaller. Flowers in the upper axils, on pedicels of $\frac{1}{2}$ to $\frac{3}{4}$ line, forming little terminal leafy corymbs. Bracteoles ovate, small, very deciduous. Calyx-tube broadly turbinate, rugose, not ribbed; lobes petal-like, orbicular, not $\frac{1}{2}$ line diameter. Petals orbicular, about twice as long as the calyx-lobes. Stamens 10, short; anther-cells obovoid, pendulous, divergent, opening in small terminal pores. Ovary short, with 2 ovules on a short basal somewhat lateral placenta.

W. Australia. Murchison river, *Oldfield*.

11. **T. hyporhytis**, *Turcz. in Bull. Mosc.* 1862, ii. 324. Apparently a small shrub, with numerous erect branches, not exceeding 6 in. in our specimens. Leaves linear or almost oblong, erect, thick and concave, very obtuse, 2 to 3 lines long, or those immediately about the flowers often much shorter. Flowers small, on slender pedicels of 2 lines or more. Bracteoles short, broad, very concave and keeled. Calyx-tube hemispherical or very broadly turbinate, rugose and pitted; lobes petal-like, orbicular, $\frac{3}{4}$ line broad. Petals not twice as long as the calyx-lobes. Stamens 10; anther-cells obovoid, divergent, pendulous, opening in terminal pores; connective-gland small. Ovules 2, on a short basal placenta, aduate to one side of the cavity.

W. Australia. Between Moore and Murchison rivers, *Drummond*, 6th Coll. n. 63.

12. **T. Maisonneuvii**, *F. Muell. Fragm.* iv. 64. Very much branched, with the aspect and foliage of *T. Johnsonii*. Leaves obovate, thick, prominently keeled, very obtuse, rarely 1 line long. Flowers nearly sessile in the upper axils. Calyx-tube shortly campanulate, rugose and pitted, not ribbed; lobes very short, thick and triangular, with lateral, divaricate, scarious auricles. Petals orbicular, fully 1 line diameter, and apparently spreading. Stamens 5, inserted outside the broad thick disk; anther-cells distinct, on a thick connective. Ovary 1-celled, with 4 to 6 ovules on a lateral placenta in the upper portion of the cavity.

N. Australia. Fincke river, *McDonall Stuart's Expedition*. The flowers are very far advanced, and I do not feel confident of having exactly ascertained some of the details of their structure.

13. **T. Mitchelliana**, *F. Muell. Fragm.* i. 11. Tall and bushy, with slender virgate branches. Leaves oblong or slightly cuneate, flat, with the midrib scarcely prominent, obtuse or mucronate, $\frac{1}{4}$ to $\frac{1}{2}$ in. long, or the floral ones or rarely nearly all shorter and broader. Flowers solitary or 2 or 3 together in the upper axils, on pedicels rarely as long as the calyx. Bracteoles falling off so early as to be rarely seen. Calyx-tube ovate-campanulate, about 1 line long, inconspicuously ribbed, produced above the ovary, the free part

sometimes circumsessile and deciduous: lobes orbicular, petal-like, nearly as long as the tube. Petals orbicular, nearly as long as the calyx-lobes. Stamens 5; filaments short; anther-cells distinct, globular, pendulous, furrowed, opening in short slits; connective-gland small. Ovules 2, erect, on a short basal placenta, in a very small cavity at the top of the adnate part of the calyx-tube. Fruiting-calyx slightly enlarged. Seeds usually 2.—*Bæckeacalycina*, Lindl. in Mitch. Three Exped. ii. 190; *Paryphanthe Mitchelliana*, Schau. in Linnæa, xvii. 235.

Victoria. Mount Arapiles, *Mitchell*; in the Grampians generally, *F. Mueller*, *Wilhelmi*. Some specimens have the leaves almost of *T. Miqueliana*, from which it is readily distinguished by the calyx. In one specimen, from the Grampians, the pedicels are rather longer than the calyx.

14. **T. Miqueliana**, *F. Muell. Fragm.* i. 11. Leaves flat or slightly concave, from obovate and about 2 lines long to oblong or somewhat cuneate and 3 lines, obtuse or almost acute. Flowers mostly solitary, on short pedicels in the upper axils. Bracteoles very small. Calyx-tube cylindrical or slightly turbinate, 10-ribbed, 1 to $1\frac{1}{4}$ line long, adnate to the top; lobes petal-like, about $\frac{3}{4}$ line long. Petals rather smaller. Stamens 5; anther-cells globular, distinct, furrowed, opening in oblong pores or short slits; connective-gland globular. Ovules 2, erect in a very small cavity at the top of the calyx-tube, but, as they enlarge, occupying the greater part of the tube.—*T. saxicola*, Miq. in Nederl. Kruidk. Arch. iv. 116, not of Schauer.

N. S. Wales, *Herb. F. Mueller*.

S. Australia. Spencer's Gulf, *Warburton*.

Very near *T. Mitchelliana* in foliage, but with a different calyx.

15. **T. micrantha**, *Hook. f. in Hook. Kew Journ.* v. 299. t. 8, and *Fl. Tasm.* i. 128. A small shrub, with slender, virgate, or spreading branches. Leaves linear-oblong, flat or the margins slightly recurved, obtuse, 2 to 3 lines long. Flowers on exceedingly short pedicels, solitary or 2 or 3 together in the axils along the branchlets of the year. Bracteoles very small. Calyx-tube nearly cylindrical, $\frac{3}{4}$ line long, 10-ribbed, adnate to the top; lobes concave, not half as long as the tube. Petals still shorter. Stamens 5; anther-cells nearly globular, distinct, slightly furrowed, opening in very short slits; connective-gland nearly as large as the cells. Ovules 2, attached to a nearly basal lateral placenta, in a small cavity near the top of the calyx-tube.

Tasmania. Banks of sand and oyster-shells, Schouten Island, Bass's Straits, *Gunn*.

16. **T. ericæa**, *F. Muell. Fragm.* i. 12. Branches slender, virgate. Leaves linear, semiterete, obtuse or mucronulate, 2 to 3 lines long. Flowers on short pedicels, solitary in each axil below the ends of the branchlets. Bracteoles very small. Calyx-tube cylindrical or slightly turbinate, 10-ribbed, above 1 line long, adnate to the top; lobes obovate, about $\frac{3}{4}$ line long. Petals rather broader and shorter. Stamens 5; anther-cells globular, distinct, divaricate, furrowed, opening in short slits; connective-gland prominent. Ovules 2, on a basal almost lateral placenta, in a small cavity near the top of the calyx-tube.

S. Australia. Kangaroo Island, *Bannier*, *Waterhouse*. Differs from *T. micrantha* chiefly in the foliage.

17. **T. oligandra**, *F. Muell. Fragm.* i. 11. Arborescent, with numerous slender rigid branchlets. Leaves spreading, broadly ovate or obovate, flat with the midrib and often the primary veins conspicuous underneath, very obtuse, 2 to 3 lines long. Flowers almost sessile, solitary or 2 or 3 together in each axil along the branchlets. Bracteoles orbicular, small. Calyx-tube turbinate, prominently 10-ribbed; lobes petal-like, spreading to about 2 lines diameter. Petals rather shorter than the calyx-lobes, connivent. Stamens 5; anther-cells globular, distinct, furrowed, opening in short slits; connective-gland prominent. Ovules 2, on a lateral almost basal placenta in a small cavity near the top of the calyx-tube.

N. Australia. Islands of the Gulf of Carpentaria, *R. Brown*.

Queensland. Endeavour river, *Banks and Solander*, *A. Cunningham*; sandy tableland on the Suttor, *F. Mueller*; Lizard Island, *M'Gillivray*.

Var. (?) *parviflora*, *F. Muell.* Leaves linear-oblong or cuneate, erect or spreading at the top, obtuse or mucronulate, 1 to 2 lines long, concave above, convex underneath, without any prominent midrib. Flowers very small, nearly sessile and solitary in the upper axils. Bracteoles ovate, very deciduous. Calyx-tube scarcely $\frac{1}{2}$ line long, the flowers otherwise as in *T. oligandra*.

N. Australia. Barren places, Gilbert river, Gulf of Carpentaria, *F. Mueller*. The foliage, like that of some *Epacrideæ*, and the very small flowers seem almost sufficient to characterize a distinct species.

11. MICROMYRTUS, Benth.

Calyx-tube cylindrical or turbinate, 5- or 10-ribbed; lobes small, petal-like or scarious, persistent, sometimes reduced to a narrow or scarcely distinguishable border. Petals 5, obovate or orbicular, deciduous or rarely persistent and spreading. Stamens 5 opposite the petals, or 10, those opposite the sepals inserted usually within the margin of the disk; anther-cells distinct, almost globular, opening in parallel divergent or divaricate slits. Ovary adnate, 1-celled; style short, filiform, glabrous, with a capitate stigma; ovules 2, or rarely 4 to 8, collaterally attached at or near the summit of a filiform placenta extending from the base to the top of the cavity. Fruit enclosed in the hardened scarcely enlarged calyx-tube and crowned by the limb, indehiscent. Seed solitary, filling the fruit; testa thin; embryo of the shape of the seed, consisting chiefly of the thick fleshy clavate radicular portion with a short slender neck turned up against one side, and rather deeply divided into 2 linear cotyledons.—Glabrous shrubs, with the habit of the smaller-leaved or more slender species of *Bæckeæ*. Leaves opposite, small, entire. Flowers small, white or pink, solitary and shortly pedicellate or almost sessile in the axils of the leaves. Bracteoles 2, scarious, close under the calyx, often enclosing the bud, but very deciduous.

The genus is limited to Australia. It is nearly allied to *Thryptomene*, but differs essentially in the ovules and in the placentation, and in most cases in the very deciduous petals. The stamens also, when 5, are opposite the petals, not alternate with them, and the fruit never appears to have the hardened endocarp observable in many species of *Thryptomene*.

Stamens 10. Petals very deciduous. Ovules 2 (Western species).

Calyx nearly cylindrical. Leaves mostly narrow.

Calyx-limb reduced to a very narrow ring 1. *M. elobata*.

Calyx-lobes distinct, orbicular, not $\frac{1}{2}$ as long as the petals . . . 2. *M. racemosa*.

Calyx turbinate. Leaves obovate, keeled. Calyx-lobes at least

$\frac{1}{2}$ as long as the petals 3. *M. imbricata*.

Stamens 5.

Petals very deciduous. Ovules 2 (Western species) 4. *M. Drummondii*.

Petals often persistent. Ovules 2, 4, or more (Southern and Eastern species).

Calyx-tube ovate-turbinate, not exceeding 1 line. Ovules 4. 5. *M. microphylla*.

Calyx-tube narrow, scarcely exceeding $\frac{1}{2}$ line. Ovules 2 . . 6. *M. minutiflora*.

Calyx-tube narrow, exceeding 1 line. Ovules 6 to 8 . . . 7. *M. leptocalyx*.

1. *M. elobata*, *Benth.* Branches slender, erect and virgate, complete specimens often under 1 ft. high. Leaves erect or slightly spreading, oblong or linear, thick, triquetrous or concave, obtuse or mucronate, 1 to 2 lines long. Flowers nearly sessile in the upper axils, forming small terminal leafy heads becoming lateral by the elongation of the shoot. Bracteoles scarious, with a thick midrib. Calyx-tube above 1 line long, narrow-turbinate or cylindrical, 10-ribbed; limb reduced to an exceedingly narrow ring or border, sometimes scarcely prominent. Petals broadly ovate, about 1 line long, deciduous. Stamens 10, in 2 rows; anther-cells globular, opening in divaricate or transverse slits; connective broad, tipped by a globular gland. Ovules 2.—*Thryptomene elobata*, F. Muell. Fragm. iv. 63.

W. Australia. Sandy plains inland of Israelite Bay, *Marwell*.

2. *M. racemosa*, *Benth.* Allied to *M. elobata*, but the branches more slender, almost filiform, and the calyx different. Leaves oblong or linear, erect, thick, concave or semiterete, very obtuse, rarely above 1 line long. Flowers on very short axillary pedicels below the ends of the branches. Bracteoles not seen. Calyx-tube slender, cylindrical or slightly turbinate, about 1 line long, with 10 scarcely prominent ribs; lobes orbicular, short and broad but distinct, scarious and minutely denticulate. Petals about $\frac{1}{2}$ line long, deciduous. Stamens 10, in 2 rows; filaments very short; anther-cells globular, distinct, opening in parallel or divergent slits; connective-gland globular. Ovules 2.—*Thryptomene racemosa*, F. Muell. Herb.

W. Australia. *Drummond*, 2nd Coll. n. 235; Murchison river, *Oldfield*.

3. *M. imbricata*, *Benth.* Erect, 1 to 2 ft. high, with numerous slender virgate branches. Leaves obovate or nearly oblong, concave and keeled or triquetrous, often imbricate and decussate on the smaller branches, obtuse, 1 to $1\frac{1}{2}$ or rarely 2 lines long. Flowers small in the upper axils, on pedicels often exceeding the leaves. Bracteoles narrow, very deciduous. Calyx-tube turbinate, 5- or 10-ribbed, about $\frac{3}{4}$ line long; lobes less than half as long as the petals, broad, obtuse, scarious. Petals broadly obovate, $\frac{3}{4}$ line long. Stamens 10, those opposite the sepals inserted much within the margin of the disk; anther-cells globular, distinct, opening in divergent or transverse slits. Ovules 2.

W. Australia. Sandy places, Termination Granite, *Marwell*.

4. *M. Drummondii*, *Benth.* Branches slender, virgate. Leaves obovate or oblong, rather thick, concave and keeled, very obtuse, $\frac{1}{2}$ to 1 line long or rarely more. Flowers very small, on very short axillary pedicels along the branches. Bracteoles short, concave, very deciduous. Calyx-tube turbinate, 5-ribbed, about $\frac{1}{2}$ line long; lobes very small, scarious, entire. Petals obovate-orbicular, at least as long as the calyx. Stamens 5, opposite

the petals; filaments very short; anther-cells globular, distinct, opening in short parallel or diverging slits. Ovules 2. Embryo with the slender 2-lobed portion as long as the thick radicular end.

W. Australia. *Drummond, 5th Coll. Suppl. n. 23.*

5. *M. microphylla*, Benth. Erect or diffuse and much-branched. Leaves usually obovate-triangular, rather thick, very obtuse, and under 1 line long, but sometimes passing from that to nearly linear, semiterete and nearly 2 lines long, decussate on the smaller branches, the upper ones sometimes minutely dentate-ciliate. Flowers nearly sessile in the upper axils, usually forming numerous little almost corymbose leafy racemes on the smaller branches. Bracteoles short, concave, keeled. Calyx-tube ovoid-turbinate, prominently 5-ribbed, about 1 line long; lobes orbicular, scarious, $\frac{1}{2}$ to $\frac{3}{4}$ line long. Petals orbicular, spreading, deciduous or sometimes persistent, about 1 line diameter. Stamens 5, opposite the petals; filaments filiform, rather thick; anther-cells parallel, opening longitudinally; connective tipped with 1 or 2 globular glands, rarely both wanting. Ovules 4, suspended in pairs from the top of the cavity. Embryo with the slender portion half as long as the thick radicular end and deeply 2-lobed.—*Imbricaria ciliata*, Sm. in Trans. Linn. Soc. iii. 259; *Stereoxylon ciliatum*, Poir. Dict. Suppl. v. 247; *Escallonia ciliata*, Rœm. and Schult. Syst. v. 329; *Bæckeia microphylla*, Sieb. in Spreng. Syst. Cur. Post. 149, DC. Prod. iii. 230, F. Muell. Fragm. i. 30; *B. plicata*, F. Muell. Fragm. i. 30; *Thryptomene plicata*, F. Muell. Fragm. iv. 63.

N. S. Wales. Port Jackson to the Blue Mountains, *R. Brown, Sieber, n. 282, and others*; northward to Hunter's River, *Herb. Mueller*; and southward to Argyle county, *Mossman* and others, and probably to the Victorian frontier.

Victoria. Rocky declivities of the Grampians and in the deserts of the Murray and Wimmera, *F. Mueller, Dallachy*, and others.

S. Australia. Tattiarra country, *J. E. Woods*.

6. *M. minutiflora*, Benth. A shrub with slender virgate branches. Leaves erect, linear-triangular, decussate and imbricate on the smaller branches as in *M. microphylla*, but more slender. Flowers very small and nearly sessile in the axils below the ends of the branches. Bracteoles very small. Calyx-tube narrow, scarcely above $\frac{1}{2}$ line long, prominently 5-ribbed; lobes short, orbicular, petal-like, minutely ciliate. Petals orbicular, rather more than $\frac{1}{2}$ line diameter. Stamens 5, opposite the petals, with the anthers of *M. microphylla*. Ovules 2, collaterally suspended from the top of the cavity. Fruit not seen.—*Thryptomene plicata*, var. *minutiflora*, F. Muell. Herb.

N. S. Wales. New England, *C. Stuart*; near Richmond, *Wilhelmi*. F. Mueller thinks this is a variety only of the preceding species, but in all the specimens I have examined it appears, like the following *M. leptocalyx* to differ constantly from *M. microphylla* in the form of the flower and the number of ovules.

7. *M. leptocalyx*, Benth. A bushy shrub, attaining about 6 ft. Leaves linear-triangular, decussate and imbricate on the smaller branches as in *M. microphylla*, but rather longer. Flowers larger than in that species, on pedicels either exceedingly short or sometimes attaining 1 line. Calyx-tube narrow-turbinate, attaining $1\frac{1}{4}$ line; lobes orbicular, scarious, about half as

long as the petals. Stamens 5, opposite the petals. Ovary 1-celled with a cluster of 6 to 8 ovules suspended from the top of the cavity on a filiform placenta arising from the base as in *M. microphylla*.—*Bækea leptocalyx*, F. Muell. Fragm. i. 30.

Queensland. Near Mount Pluto, *Mitchell*.

TRIBE II. LEPTOSPERMEÆ.—Ovary divided into 2 to 5 or more cells. Fruit dry, capsular, opening at the top loculicidally in as many valves as cells, or very rarely 1- or 2-seeded and indehiscent.

SUBTRIBE I. BÆKEÆ.—Leaves opposite, usually small. Flowers usually small, pedicellate or subsessile, solitary or few in a small cyme umbel or head in the axils of the leaves, sometimes forming a terminal head with the floral leaves reduced to bracts. Stamens definite, or if indefinite usually in a single row, free or united at the base in a ring, or into clusters alternating with the petals (not opposite the petals as in other subtribes), and usually shorter than the petals. Ovules usually in 2 rows. Embryo with a thick radicle, produced at the opposite end into a slender incurved neck or into a short point with very small, often minute cotyledons.

The most constant character of this subtribe is probably that derived from the embryo, in which, so far as known, the cotyledons are always minute, whilst in the following subtribes they are as long as or longer than the radicle. There are still many species, however, where the embryo has not yet been observed. Generally speaking also the subtribe is distinguished by opposite leaves, and the stamens shorter than the petals, but to these there are a few exceptions.

12. SCHOLTZIA, Schau.

(*Piptandra*, Turcz.)

Calyx-tube turbinate, ovoid or hemispherical, adnate to the ovary, the free part short and broad or reduced to a narrow ring; lobes 5, spreading, petal-like or scarious, shorter than the petals, persistent or deciduous. Petals 5, obovate or orbicular, spreading, usually deciduous. Stamens 5 to 10 or rarely as many as 20 or even more, inserted in a single row on the margin of the disk, those opposite the centre of the petals usually wanting, all free, deciduous; filaments filiform or slightly dilated; anther-cells either united and opening in terminal pores, or distinct furrowed and opening into slits; connective usually thickened and tipped by a globular gland. Ovary inferior, flat-topped or slightly convex, with a tubular depression in the centre round the style, 2- or rarely 3-celled, with 2 superposed ovules or rarely 1 or 3 ovules in each cell, attached to a small axile placenta; style filiform, short, glabrous, with a truncate or capitate stigma. Capsule adnate to the hardened persistent but scarcely enlarged calyx-tube and crowned by its lobes, 2-celled, opening on the flat or convex summit, or almost indehiscent or separating into 2 cocci. Seeds 1 or 2 in each cell, filling the cell and shaped accordingly; testa thin; embryo of the shape of the seed, consisting chiefly of a thick fleshy clavate or truncate radicular portion, with a short slender neck turned up against one side and more or less divided into 2 cotyledons. —Glabrous shrubs, with the habit of *Bækea*. Leaves, opposite, small, entire or minutely denticulate-ciliate. Flowers small, white or pale pink, in

little cymes or rarely umbels of 3 or more, or sometimes solitary on short axillary peduncles. Bracts at the base of the peduncles and pedicels or of the sessile calyces small and deciduous.

The genus is confined to Western Australia. It forms the passage, as it were, from *Thryptomene* and *Micromyrtus*, on the one hand, to *Baekea* on the other. Some species only differ from the section *Babingtonia* of the latter by the number and position of the ovules, and in others the apparently incomplete dissepiment is an approach to the filiform placenta of *Micromyrtus*. The prevalent cymose inflorescence gives most of the species an aspect different from either.

Anthers broadly obovoid or obcordate, the cells more or less united, and opening in terminal pores.

Flowers sessile or nearly so in the cyme, or within the bracts on the peduncle.

Leaves closely sessile, orbicular-cordate or reniform. Cymes rather loose

1. *S. uberiflora*.

Leaves obovate or almost rhomboidal narrowed at the base. Cymes dense or few-flowered.

Calyx-tube smooth or slightly rugose.

Peduncles not exceeding the leaves, 3- to 5-flowered.

Calyx-segments entire. Stamens about 20. Ovary 2-celled

2. *S. obovata*.

Peduncles exceeding the leaves, with 5 to 9 large flowers.

Calyx-segments entire. Stamens 10-12. Ovary 3-celled

3. *S. spatulata*.

Peduncles short, with 1 to 3 small flowers. Calyx-segments ciliate. Stamens under 10. Ovary 3-celled

4. *S. ciliata*.

Peduncles exceeding the leaves, with 1 to 3 small flowers.

Calyx-segments entire. Ovary 3-celled

11. *S. Drummondii*.

Calyx-tube densely pitted and rugose. Flowers small, numerous in the cyme. Ovary 2-celled

5. *S. capitata*.

Leaves linear-terete

12. *S. teretifolia*.

Flowers pedicellate, in pedunculate umbels.

Leaves narrow-cuneate, concave or keeled. Ovules 2 in each cell

6. *S. umbellifera*.

Leaves obovate-cuneate, flat or nearly so. Ovules solitary in each cell

7. *S. laxiflora*.

Anther-cells distinct, either deeply furrowed and opening in slits, or opening in oblong pores.

Leaves small, obovate or orbicular.

Flowers in dense cymes. Calyx-tube narrow-turbinate.

Ovules 2 in each cell. Stamens 8 to 10

8. *S. leptantha*.

Peduncles 1- to 3-flowered. Calyx-tube broad. Stamens 5.

Peduncles not exceeding the leaves. Ovary 2-celled.

Petals about $\frac{1}{2}$ line diameter. Ovules usually solitary

9. *S. parviflora*.

Petals about 1 line diameter. Ovules 2 in each cell

10. *S. oligandra*.

Peduncles exceeding the leaves. Petals $1\frac{1}{2}$ lines diameter.

Ovary usually 3-celled with 2 ovules in each cell

11. *S. Drummondii*.

Leaves slender, linear-terete, about 2 lines. Peduncles short,

1- to 3-flowered. Stamens about 20

12. *S. teretifolia*.

1. ***S. uberiflora*, F. Muell. Fragm. iv. 74.** A straggling shrub, of about 6 ft. Leaves closely sessile, spreading or reflexed, orbicular-cordate or almost reniform, very obtuse, mostly 2 to 3 lines diameter, rigid and prominently veined. Flowers white or pale pink, smaller than in *S. obovata*, in a small cyme or head on a common peduncle considerably longer than the leaves. Bracts small, ovate, falling off from the very young buds. Calyx-tube tur-

binate and under 1 line long in flower, at length ovoid-campanulate and nearly $1\frac{1}{2}$ lines long; segments not $\frac{1}{3}$ as long as the petals. Petals deciduous, above 1 line diameter. Stamens usually 6 to 8; anthers broadly obcordate, the cells opening in terminal pores, connective-gland prominent. Ovary 2-celled, with 2 or rarely 3 ovules in each cell. Seed ovoid; testa crustaceous; embryo with the slender deeply 2-lobed neck not half as long as the thick radicular portion, and folded against it.

W. Australia. Murchison river, *Oldfield*.

2. ***S. obovata***, *Schau. in Linnæa*, xvii. 241, and in *Pl. Preiss.* i. 109. A rigid spreading or almost decumbent shrub of 1 to 2 ft., or when luxuriant twice that size. Leaves from obovate to oblong-cuneate or almost rhomboidal, much narrowed at the base, rigid, somewhat concave, obtuse or almost acute, 2 to 3 lines long. Peduncles very short or rarely as long as the leaves, bearing each a cyme of 3 to 5 nearly sessile flowers. Bracts lanceolate, very fugacious. Calyx-tube hemispherical, smooth, about $1\frac{1}{2}$ lines diameter; lobes petal-like, broad, half as long as the petals. Petals about $1\frac{1}{2}$ lines diameter. Stamens about 20; anthers obcordate, the cells opening in small terminal pores, connective without any prominent gland. Ovary flat-topped, the central depression not deep, 2-celled with 2 superposed ovules in each cell.—*F. Muell. Fragm.* iv. 74; *Backea involucrata*, *Endl. in Huet.* Enum. 51.

W. Australia. Swan River, *Fraser, Preiss.* n. 343, *Drummond*, n. 147, 2nd Coll. n. 76, and others; Murchison river, *Oldfield*.

Backea obovata, DC. Prod. iii. 230, is referred by Schauer to this species. The diagnoses given will refer equally well to several other species of *Scholtzia*, but from French specimens in Herb. R. Br. it is more probably the *S. leptantha*.

3. ***S. spatulata***, *Benth.* Very near *S. obovata*, but independently of the stamens and ovary it is known at once by its longer peduncles and rather larger flowers. Leaves broadly obovate-spatulate, much narrowed at the base, erect or spreading, 2 to 3 lines long or rather more. Peduncles longer than the leaves, bearing each a cyme of 5 to 9 nearly sessile flowers similar to those of *S. obovata*, but with apparently only about 10 stamens; in all the specimens, however, the flowers are far advanced and most of the stamens are fallen off. Ovary convex after flowering, 3-celled in all the flowers examined, with 2 superposed ovules in each cell.—*Piptandra spatulata*, *Turcz. in Bull. Mosc.* 1862, ii. 324.

W. Australia. Murchison river, *Oldfield, Drummond*, 6th Coll. n. 59.

4. ***S. ciliata***, *F. Muell. Fragm.* iv. 76. A spreading much-branched shrub of about 4 ft., the branchlets sometimes almost spinescent. Leaves obovate to nearly orbicular, spreading or recurved at the top, thick, concave, obtuse, mostly about 1 line long, the upper ones often denticulate-ciliate. Peduncles shorter than the leaves, bearing each 1 or 3 almost sessile flowers. Bracts denticulate-ciliate. Calyx-tube rather broad, rugose; lobes ovate-orbicular, ciliate, not half as long as the petals, and often deciduous. Petals about 1 line diameter, deciduous. Stamens 6 to 9; anthers broadly obcordate, the cells opening in terminal pores or short almost confluent slits. Ovary 3-celled, with 2 superposed ovules in each cell.

W. Australia. Murchison river, *Oldfield*. This species much resembles *Thryptomene denticulata*, but the deciduous petals and calyx-lobes and immersed style readily distinguish it, independently of the structure of the ovary.

5. **S. capitata**, *F. Muell. Herb.* A twiggy shrub of 8 to 10 ft. Leaves broadly obovate or almost rhomboidal, obtuse or almost acute, narrowed into a short petiole, concave, thick and rigid, rarely attaining 2 lines. Flowers rather small, white, in a dense almost capitate cyme on a peduncle considerably exceeding the leaves. Calyx-tube ovoid-campanulate, densely pitted and rugose as in some *Thryptomenes*; lobes petal-like, nearly half as long as the petals. Petals scarcely 1 line diameter. Stamens apparently few, but more or less fallen from the flowers examined, all very far advanced. Ovary 2-celled, with 2 superposed ovules in each cell.

W. Australia. Murchison river, *Oldfield*, *Drummond*, n. 134. *F. Muell.*, *Fragm.* iv. 75, observes that this may be a variety of *S. uberiflora*, but it has not the peculiar foliage of that species, and in the calyx it is different both from that and from *S. obovata*, which it resembles in some respects.

6. **S. umbellifera**, *F. Muell. Fragn.* iv. 75. A small shrub, with slender, erect, virgate branches. Leaves narrow-cuneate, erect and recurved, thick, concave or keeled, obtuse, about 1 line long, often minutely denticulate-ciliate. Peduncles longer than the leaves, bearing each an umbel of 3 to 6 small white flowers on short slender pedicels. Bracts at the base of the pedicels small and deciduous. Calyx-tube turbinate, not $\frac{1}{2}$ line long; lobes petal-like, not half as long as the petals. Petals orbicular, about $\frac{3}{4}$ line diameter. Stamens 6 to 9; filaments filiform; anthers broadly obcordate or nearly globular, the cells united nearly to the top and opening in terminal pores. Ovary more or less perfectly 2-celled, with 2 superposed ovules in each cell or on each side of the placenta; style very shortly immersed.

W. Australia. Flinders Bay, *Collie*; *Champion Bay*, *Walcott*.

7. **S. laxiflora**, *Benth.* Apparently a tall shrub with slender virgate branches. Leaves obovate-cuneate, much narrowed at the base, flat or slightly concave, obtuse or mucronulate, 1 to 2 lines long. Flowers small, in little umbels of 3 to 5 or rarely solitary, on filiform peduncles exceeding the leaves. Calyx-tube broadly turbinate, scarcely rugose, about $\frac{1}{2}$ line long or rather more; lobes broad, short, petal-like. Petals orbicular, about 1 line diameter. Stamens 10; anther-cells united, opening in large oblong pores. Ovary 2- or rarely 3-celled, with one ascending ovule in each cell, style very shortly immersed.

W. Australia. Between Moore and Murchison rivers, *Drummond*, 6th Coll. n. 64.

8. **S. leptantha**, *Benth.* A low bushy shrub with virgate branches, allied to *S. capitata* and *S. parviflora*, but readily distinguished by the calyx. Leaves from narrow-obovate to almost orbicular, erect and recurved, rigid, nearly flat or concave, obtuse or with a slightly prominent midrib, 1 to $1\frac{1}{2}$ lines long. Peduncles longer than the leaves, bearing each a dense capitate cyme of small white flowers. Bracts small, deciduous. Calyx-tube narrow-turbinate, obscurely ribbed, about 1 line long; lobes usually short and broad and rarely exceeding $\frac{1}{2}$ of the petals. Petals about $\frac{3}{4}$ line diameter. Stamens about 8 to 10; anther-cells globular, very small, quite distinct, opening in

short longitudinal slits. Ovary more or less perfectly 2-celled, with 2 superposed ovules in each cell or on each side of the placenta; style shortly immersed.

W. Australia. Seashore, Sharks' Bay, *Milne*, also in Herb. R. Brown from *Herb. Mus. Par.* This is, therefore, probably the true *Backea obovata*, DC. Prod. iii. 230.

9. **S. parviflora**, *F. Muell. Fragm.* iv. 76. A spreading shrub of 6 to 8 ft. Leaves from broadly-obovate or almost spatulate and much narrowed at the base to nearly orbicular, mostly about or under 1 line long, rarely nearly 2 lines on the main branches. Peduncles very short, bearing usually 3 small white flowers. Calyx-tube broad, slightly rugose, not $\frac{1}{2}$ line long; lobes broad, entire, not half as long as the petals. Petals spreading, scarcely above $\frac{1}{2}$ line diameter. Stamens about 5; anther-cells ovoid-globular, distinct, opening almost to the base in longitudinal nearly parallel slits; connective-gland small. Ovary flat-topped, 2-celled, with 1 ascending ovule in each cell; style immersed in a deep tubular central depression. Young fruit apparently separating into 2 cocci.

W. Australia, *Drummond*, 2nd Coll. n. 75 (*4th Coll.* ?), n. 56; Murchison river, *Oldfield*. In *Drummond's* specimens the leaves are smaller, more spreading, more orbicular, and less narrowed at the base than in *Oldfield's*.

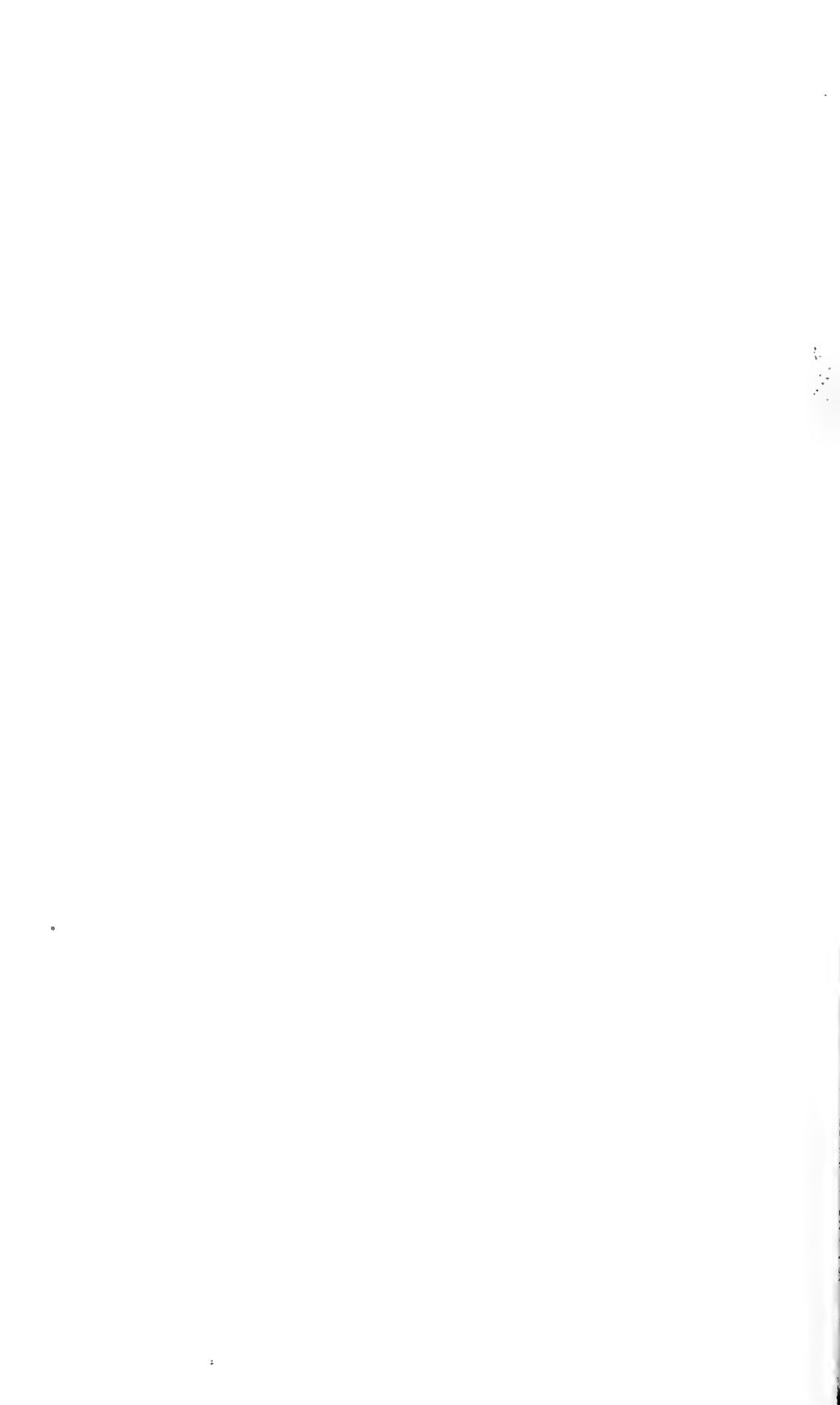
10. **S. oligandra**, *F. Muell. Herb.* A spreading densely-branched shrub of about 4 or 5 ft. Leaves spreading, decussate on the smaller branches, obovate-orbicular, thick, flat or concave, nerveless, very obtuse, 1 line or rather more in diameter. Flowers small, solitary or 3 together, sessile on a short peduncle articulate at the top, with minute orbicular exceedingly deciduous bracts. Calyx-tube turbinate, nearly $\frac{3}{4}$ line long, lobes short and broad, petal-like, entire. Petals nearly 1 line long. Stamens about 5; filaments short; anther-cells deeply furrowed and opening in the furrows, having the appearance of 4 globular collateral cells. Ovary nearly flat, with 2 superposed ovules in each cell; the style not very deeply immersed. Fruit separating into 2 hard usually 1-seeded cocci.

W. Australia, *Drummond* (*5th Coll.* ?), n. 147; Murchison river, *Oldfield*. *Drummond's* specimens have numerous flowers, but far advanced, and have lost their stamens. In *Oldfield's*, the flowers are very few, but more perfect; both appear, however, to belong to one species.

11. **S. Drummondii**, *Benth.* Much branched and rigid. Leaves obovate or orbicular, spreading, thick, flat or concave, very obtuse, mostly about 1 line long. Peduncles rather slender but rigid, longer than the leaves, bearing 1 or rarely 3 flowers, sessile at the top, and much larger than in *L. oligandra*. Calyx-tube hemispherical, smooth or scarcely rugose, lobes petal-like, about half as long as the petals. Petals persistent, spreading, $1\frac{1}{2}$ lines diameter. Stamens not seen. Ovary after flowering convex, 2- or more frequently 3-celled, with 2 superposed ovules in each cell. Style very shortly immersed.

W. Australia, *Drummond* (*3rd Coll.* ?), n. 38.

12. **S. teretifolia**, *Benth.* Stems in our specimens numerous, erect, 6 to 8 in. high. Leaves linear, terete or channelled above, obtuse, not exceeding 2 lines and mostly clustered as in *Astartea*. Flowers solitary or 2 or 3 together on very short peduncles in the upper axils. Calyx-tube broadly





1/2 2 3/4 1/2 1/2

turbinate, somewhat rugose, about 1 line diameter; lobes broad, scarious, denticulate-ciliate. Petals twice as long as the calyx-lobes, nearly $1\frac{1}{2}$ lines diameter. Stamens above 20; filaments rather long; anthers broadly obcordate or the cells almost distinct, opening in large oblong pores. Ovary very convex or almost free, 2-celled with 2 superposed ovules in each cell; style immersed in a central tubular depression.

W. Australia, Drummond, n. 136. The foliage gives this plant a very different aspect from that of the other species, yet the floral characters are entirely those of *Scholtzia*.

13. *BÆCKEA*, Linn.

(*Jungia*, *Gærtn.*; *Imbricaria*, *Sm.*; *Schidiomyrtus*, *Rinzia*, *Euryomyrtus*, *Camphoromyrtus*, *Tetrapora*, *Harmogia*, and *Oxymyrrhine*, *Schau.*; *Babingtonia*, *Lindl.*; *Ericomyrtus*, *Turcz.*)

Calyx-tube turbinate or hemispherical, adnate to the ovary at the base, the free part broad and open; lobes 5, imbricate, continuous with the tube or more or less scarious, usually persistent. Petals 5, broadly obovate or orbicular, longer than the calyx-lobes, spreading. Stamens rarely exceeding 20 and often under 10, free, in a single row round the margin of the disk, and usually horizontally inflected in the bud. Filaments filiform or flat; anther-cells united or distinct, opening in longitudinal slits or in small pores. Ovary adnate to the lower part of the calyx-tube or enclosed in it, and either more or less convex at the top or semiadnate or free except the broad base, 2- or 3-celled, with 2 collateral or several ovules in each cell, in 2 rows or in a ring round a more or less peltate placenta; style filiform, glabrous, inserted in a deep tubular or rarely shallow depression in the centre of the ovary; stigma capitate or peltate. Capsule partially or wholly superior, enclosed in the scarcely enlarged calyx-tube, opening at the top loculicidally in 2 or 3 valves. Seeds either 1 or 2 in each cell and reniform, or several and more or less angular; testa thin or slightly crustaceous; embryo filling the seed, the radicular portion thick and clavate, with a slender short neck folded against the side and shortly divided into 2 ovate or oblong cotyledons.—Heath-like glabrous shrubs. Leaves small, opposite, entire. Flowers small, white or pink, either solitary in the axils on a peduncle articulate at, above, or rarely below the middle, with two small bracteoles at the articulation, or several together on a short common peduncle with a small bract at the base of each pedicel.

The genus is chiefly Australian, but one of the common East Australian species extends into New Caledonia, and 2 or 3 others not Australian are found in New Caledonia or in the Indian Archipelago and S. China.

Much as several of the species differ from each other in the stamens as well as in the ovary, it is exceedingly difficult to distribute the whole into good sections, for the different forms appear either to pass into each other by almost insensible gradations, or to be strictly monotypic, and none have appeared to me to be sufficiently accompanied by differences in habit or by any combination of characters to justify the adoption of any of the long list of separate genera proposed by Schauer and others. The presence or absence of the five stamens opposed to the petals is perhaps the most marked, but even that appears to be uncertain in the few cases where the stamens exceed 20. The anthers of the first sections are very different from those of the last, but those of *Harmogia* and *Oxymyrrhine* show a gradual passage from the one to the other.

A. Stamens 10 or more, of which 5 (often larger than the others) opposite the centre of the petals. Anther-cells parallel, opening longitudinally.

SECTION 1. **Rinzia**.—*Filaments all, or at least those opposite the petals, distinctly flattened.*

Stamens 10.

Ovary superior except the broad base, with 2 or rarely 3 ovules in each cell. Pedicels exceeding the leaves.

Leaves ovate or oblong, thick, 1 to 1½ lines long 1. *B. platystemona*.

Leaves linear, 1 to 3 lines long 2. *B. Fumana*.

Ovary convex, but almost entirely inferior, with usually 3 ovules in each cell. Pedicels shorter than the small erect leaves 3. *B. dimorphandra*.

Ovary very convex or half-superior, with 4 to 6 or more ovules in each cell. Pedicels much longer than the leaves.

Leaves linear or lanceolate, flat 4. *B. schollerifolia*.

Leaves ovate or orbicular, thick and very convex 5. *B. oryccoides*.

Stamens 15 to 20. Leaves linear, semiterete 6. *B. Drummondii*.

SECTION 2. **Euryomyrtus**.—*Filaments filiform or very slightly dilated.*

Stamens 10. Ovules 2, 3, or rarely 4 in each cell.

Leaves linear, loose or spreading. Pedicels longer than the leaves.

Ovary convex 7. *B. diffusa*.

Leaves thick, obovoid to linear-terete. Pedicels not exceeding the leaves. Ovary convex 8. *B. crassifolia*.

Leaves under 1 line long, imbricate and decussate. Ovary flat-topped 9. *B. tetragona*.

Stamens 15. Ovules 2 in each cell. Leaves rarely above 1 line long.

Leaves very small, imbricate and decussate. Flowers nearly sessile 10. *B. ericææ*.

Leaves above ½ line long, rather loose. Flowers shortly pedicellate 8. *B. crassifolia*, var.

Stamens 20 to 30. Ovary convex, with about 8 ovules in each cell.

Leaves linear-terete, 1 to 2 lines long. Pedicels short. Calyx-lobes petal-like 11. *B. polystemona*.

(*B. polyandra* with numerous stamens has the petaline ones present, but the anthers are very different from those of *Euryomyrtus*.)

B. Stamens few or numerous, but none opposite the centre of the petals, excepting very rarely, when there are more than 20. Ovules several in each cell.

SECTION 3. **Schidiomyrtus**.—*Anther-cells distinct, parallel, opening longitudinally to the base. Flowers solitary. Ovary 2- or rarely (in *B. astarteoides*) 3-celled.*

Leaves broadly ovate or orbicular, flat or concave, 1½ to 3 lines long 12. *B. crenulata*.

Leaves thick, triquetrous, decussate, ½ to 1 line long 13. *B. brevifolia*.

Leaves concave, from narrow-obovate and 1 line to linear-cuneate and 3 lines long.

Calyx-lobes entire 14. *B. Gunniana*.

Calyx-lobes denticulate-ciliate 15. *B. diosmifolia*.

Leaves linear, semiterete or triquetrous, or subulate, 2 to 9 lines long.

Calyx-tube broadly turbinate.

Leaves linear, concave, rigid. Stamens about 5.

Flowers about 1 line long 16. *B. leptocaulis*.

Flowers about ¼ line long 17. *B. arbuscula*.

Leaves semiterete or triquetrous, usually short and clustered in the axils. Stamens 6 to 8 18. *B. astarteoides*.

Leaves linear-subulate, usually long. Stamens 10 to 15 19. *B. limifolia*.

Calyx-tube narrow-turbinate. Leaves linear-subulate, usually long.

Flowers very small. Stamens about 5 20. *B. stenophylla*.

SECTION 4. **Harmogia**.—*Anther-cells distinct, nearly globular, deeply furrowed, parallel or divergent, and opening more or less in longitudinal striae in the furrows. Ovary 3-celled, with several ovules in each cell. Eastern species.*

Leaves flat. Flowers often clustered or umbellate.

Leaves oblong-cuneate or nearly linear, under 3 lines long.

Pedicels short thick, 1-flowered but often 2 or 3 in the axils 21. *B. camphorata*.

- Leaves linear-lanceolate or narrow-oblong, 4 lines to 1 in. long.
 Flowers mostly in pedunculate umbels 22. *B. virgata*.
 Leaves ovate or oblong, crenulate, 2 to 3 lines long. Flowers
 1 to 3 on a slender peduncle 23. *B. crenatifolia*.
 Leaves orbicular, thick, about 1 line long. Flowers 1 to 3 on a
 short peduncle 24. *B. Cunninghamii*.
 Leaves semiterete or triquetrous, obtuse or with recurved points.
 Slits of the anther-cells almost shortened to pores.
 Leaves slender, mostly imbricate-decussate or short, the recurved
 points minute or none. Filaments not clavate 25. *B. densifolia*.
 Leaves rather thick, the recurved points prominent. Filaments
 clavate under the anther 26. *B. Behrii*.

SECTION 5. *Oxymyrrhine*.—*Anther-cells more or less united at the base, didymous, deeply furrowed and opening in the furrows, giving the whole anther the appearance of 4 collateral globular cells, either all equal or the 2 central ones smaller. Ovary 3-celled with numerous ovules in each cell. Western species.*

- Leaves semiterete, triquetrous, or scarcely flattened, mostly $1\frac{1}{2}$ to
 3 lines long.
 Leaves recurved at the end. Flowers mostly in threes. Calyx-
 tube not ribbed, lobes obtuse. Stamens about 8 27. *B. uncinella*.
 Leaves mostly obtuse. Flowers solitary. Calyx-tube prominently
 5-ribbed, lobes acute. Stamens 20 or more 28. *B. polyandra*.
 Leaves mostly thick and clavate or curved. Flowers 1 to 3.
 Calyx-lobes acute. Stamens 6 to 8 29. *B. corynophylla*.
 (See also 25. *B. densifolia*, and 26. *B. Behrii*.)
 Leaves mostly obovate or orbicular, 1 to $1\frac{1}{2}$ line long. Flowers
 solitary. Calyx-lobes short, obtuse.
 Leaves thick, spreading. Stamens about 5 30. *B. pachyphylla*.
 Leaves very concave, erect or imbricate. Stamens 15 to 20 31. *B. crispiflora*.

SECTION 6. *Babingtonia*.—*Anther-cells united into an obcordate or almost globular anther, and opening in terminal pores or short slits. Western species.*

- Leaves slender, short, semiterete, crowded on the lateral branchlets
 (except in *B. pygmæa*).
 Flowers mostly in clusters, forming a long, unilateral, leafy
 raceme. Stamens about 10 32. *B. camphorosmæ*.
 Flowers small, mostly solitary, on slender pedicels. Stamens
 20 to 30 33. *B. pulchella*.
 Flowers very small, solitary or 2 together, on slender pedicels.
 Stamens about 10 34. *B. pygmæa*.
 Leaves small, obovate. Flowers small, usually 2 to 5 on each
 peduncle, in a short corymbose raceme. Calyx-tube not
 angled.
 Stamens 10 to 15. Petals about $\frac{1}{2}$ line diameter 35. *B. corymbulosa*.
 Stamens usually 10. Petals above 1 line diameter 36. *B. floribunda*.
 Stamens about 5. Petals above 1 line diameter 37. *B. pentandra*.
 Leaves small, obovate-triangular. Flowers solitary. Calyx-tube
 acutely 5-angled. Stamens 15 to 20 38. *B. pentagonantha*.
 Leaves rigid, often 2 lines long, or more. Flowers rather large,
 solitary. Calyx-tube very open, not angled, at least 2 lines
 diameter. Stamens 15 to 30.
 Leaves broadly obovate, cuneate or truncate, scarcely 2 lines
 long 41. *B. subcuneata*.
 Leaves oval to oblong-linear, concave, 2 to 4 lines long 40. *B. ovalifolia*.
 Leaves thick, almost fleshy, oblong or oblong-linear, 2 to 4
 lines long 39. *B. robusta*.
 Leaves slender, linear-terete 42. *B. grandiflora*.

SECTION I. RINZIA.—Stamens 10 or more, of which 5 opposite the centres of the petals; filaments all, or at least those opposite the petals, much flattened and broad, often notched at the top; anther-cells distinct and parallel, opening longitudinally to the base. Ovary 3-celled. Flowers pedicellate, solitary or rarely 2 or 3 together on an exceedingly short common peduncle.

1. **B. platystemona**, *Benth.* Apparently low and diffuse, with the habit and foliage of *B. crassifolia*, but with very different stamens. Leaves ovate-oblong, thick, concave, very obtuse, 1 to $1\frac{1}{2}$ lines long. Flowers solitary, on pedicels of 2 to 3 lines, with a pair of small coloured bracts at or near the base. Calyx-tube very broadly campanulate, almost introrse at the base, nearly 2 lines diameter; lobes semi-orbicular, continuous with the tube. Petals twice as long as the calyx-lobes, about $1\frac{1}{2}$ lines diameter, very deciduous. Stamens 10; filaments flat, those opposite the petals very broad, emarginate at the end with the connective-gland in the notch, the others smaller and more tapering, not notched; anthers in front of the filament, the cells distinct and parallel, opening longitudinally. Ovary very convex, almost superior, 3-celled, with 2 collateral ovules in each cell; style shortly immersed. Seeds rather large, with a crustaceous granulate testa, as in *B. diffusa*.

W. Australia, *Drummond*, 4th Coll. n. 148; 5th Coll. n. 122.

2. **B. Fumana**, *F. Muell. Fragm.* iv. 68. A small shrub, with numerous erect or diffuse branches, often not above 6 in. high, attaining 1 ft. in our larger specimens. Leaves loosely imbricate on the smaller branches, or if distant not appressed, linear or linear-oblong, concave or semiterete, obtuse, 1 to 3 lines long or rarely more. Flowers apparently white, on pedicels from rather longer than, to twice as long as the floral leaves, with 2 minute bracts at the base. Calyx broadly hemispherical, almost introrse at the base, about $1\frac{1}{2}$ lines diameter, with broad obtuse lobes nearly as long as the tube, and slightly scarious at the edges. Petals about $1\frac{1}{2}$ lines diameter. Stamens 10; filaments flat, those opposite the petals very broad, emarginate at the end, with the connective-gland in the notch, the others smaller, more tapering, and not notched; anthers in front of the filament, the cells distinct and parallel, opening longitudinally. Ovary nearly globular, adnate by the broad base, but otherwise superior, 3-celled, with 2 collateral ovules in each cell.—*Rinzia Fumana*, *Schau.* in *Linnæa*, xvii. 239, and in *Pl. Preiss.* i. 108.

W. Australia. Swan River, *Drummond*, 1st Coll.; also n. 77 and 140; King George's Sound, *Preiss.* n. 164.

3. **B. dimorphandra**, *F. Muell. Herb.* A small shrub of $\frac{1}{2}$ to 1 ft., with numerous slender erect virgate branches. Leaves appressed, linear, semiterete or concave, obtuse, 1 to 2 lines long. Flowers solitary, or 2 or 3 together on very short pedicels, with 2 or 3 bracts at the base. Calyx-tube broad; lobes ovate, about as long as the tube, not scarious. Petals nearly $1\frac{1}{2}$ lines diameter. Stamens 10; filaments flat, those opposite the petals broad, 2-lobed at the top, with the connective-gland in the notch, the others smaller, tapering and not notched; anthers in front of the filament; the cells distinct

and parallel, opening longitudinally. Ovary convex, but almost entirely inferior, 3-celled, with usually 3 ovules in each cell. Style shortly immersed.

W. Australia. Sandy places near Cape le Grand, *Maxwell*. Near *B. Fumana*, but besides the differences in the foliage and ovary, the flowers in the dried specimen are of a rich pink, whilst in *B. Fumana* they appear to be white or nearly so.

4. **B. schollerifolia**, *Lehm. in Pl. Preiss.* ii. 369. Small, slender, and diffuse or procumbent. Leaves oblong or lanceolate, flat with slightly recurved margins, obtuse or rather acute, $1\frac{1}{2}$ to 3 lines long. Flowers solitary, on pedicels of $\frac{1}{2}$ to 1 in., not articulate, with a coloured deciduous bract at the base. Calyx-tube broadly turbinate, soon becoming hemispherical, rather above 1 line diameter; lobes broad, rather thick, with thin scarious minutely ciliate margins. Petals above 2 lines diameter. Stamens 10; filaments flat, those opposite the petals broader and emarginate, with the connective-gland in the notch, the others tapering and entire; anthers in front of the filament; the cells distinct, parallel, and opening longitudinally. Ovary very convex, 3-celled, with 4 to 6 ovules in each cell on a small placenta; style shortly immersed.

W. Australia, *Drummond*, n. 63, and 5th Coll. n. 125, or in some sets n. 121; near Seven-mile Bridge, Plantagenet district, *Preiss*, n. 2015.—The habit and foliage are nearly those of *B. diffusa*, but the stamens and ovary are different.

5. **B. oxycoccoides**, *Benth.* Branches prostrate or trailing. Leaves ovate or orbicular, thick, very convex with recurved margins, obtuse, under 2 lines diameter. Flowers pink, solitary, on pedicels of $\frac{1}{2}$ to 1 in., not articulate, with a coloured deciduous bract at the base. Calyx-tube very broadly turbinate, fully 2 lines diameter; lobes very short and broad, with scarious minutely ciliate margins. Petals fully $2\frac{1}{2}$ lines diameter. Stamens 10; filaments flat, thick, erect, all tapering at the end, with small globular connective-glands, or those opposite the petals rather broader and slightly emarginate; anthers in front of the filament; the cells distinct, parallel, and opening longitudinally. Ovary convex, 3-celled, with 10 to 12 or even more ovules in each cell; style shortly immersed.

W. Australia, *Drummond*, 5th Coll. n. 120.

6. **B. Drummondii**, *Benth.* Branches apparently divaricate, elongated and rather rigid. Leaves linear, semiterete or triquetrous, rather thick, obtuse or mucronate, mostly 2 to 4 lines long. Flowers rather large, solitary, on short pedicels with 2 small bracts at the base, or on short axillary branchlets with 1 or 2 pairs of small leaves towards the base. Calyx-tube hemispherical, about 2 lines diameter; lobes short and broad, thick at the base, with broad petal-like margins. Petals about 2 lines diameter. Stamens 15 to 20, closely packed in a single row; filaments all flat and broad, but usually quite distinct, those opposite the centre of the petals the largest, all entire, with a small connective-gland; anthers in front of the filaments; the cells almost connate, parallel, opening longitudinally. Ovary convex, 3-celled, with 3 or 4 ovules in each cell on a peltate placenta; style shortly immersed.

W. Australia, *Drummond*, 5th Coll. n. 123.

SECTION II. EURYOMYRTUS.—Stamens 10 or more, of which 5 opposite the centre of the petals; filaments filiform or very slightly flattened; anther-

cells distinct, parallel, and opening longitudinally to the base. Ovary 3-celled. Flowers pedicellate or nearly sessile, solitary in each axil.

7. **B. diffusa**, *Sieb. in DC. Prod.* iii. 230. Prostrate or diffuse, with slender branches, often attaining a considerable length. Leaves linear, flat, or thick and concave, smooth or striate, acute or almost obtuse, from 2 to 4 or even 5 lines long. Flowers solitary, on slender axillary pedicels of 2 or 3 lines, with a small bract at the base and a pair of bracteoles usually about the middle. Calyx-tube broadly turbinate or hemispherical, at least $1\frac{1}{2}$ lines diameter; lobes short and broad, minutely ciliate. Petals nearly $1\frac{1}{2}$ lines diameter. Stamens 10; filaments filiform or slightly dilated, especially those opposite the petals, but much less so than in the *Rinzias*; anther-cells distinct and parallel, with a rather large obovoid-globular connective-gland. Ovary convex, 3-celled, with 3 or 4 ovules in each cell; style very shortly immersed. Capsule half-superior. Seeds usually 2 in each cell, collateral, rather large, with a lateral hilum; testa crustaceous. Embryo with the slender cotyledonar end transversely flexuose or twisted.—Hook. f. *Fl. Tasm.* i. 142; *F. Muell. Fragm.* iv. 67; *B. alpina*, Lindl. in *Mitch. Three Exped.* ii. 178; *B. thymifolia*, Hook. f. in Hook. *lc. Pl. t.* 284, and in *Fl. Tasm.* i. 141; *B. affinis* and *B. prostrata*, Hook. f. in Hook. *lc. Pl. t.* 284; *Euryomyrtus diffusa*, *E. alpina*, and *E. thymifolia*, Schau. in *Linnæa*, xvii. 239; *Euryomyrtus parviflora* and *E. Stuartiana*, *F. Muell.*; *Miq. in Ned. Kruidk. Arch.* iv. 149.

N. S. Wales. Port Jackson to the Blue Mountains, *R. Brown*; *Sieber, n.* 276, and others.

Victoria. Alpine and subalpine heights, Mounts William, Buller, Barkly, Liger, etc., *F. Muell.*

Tasmania. Derwent river and Port Dalrymple, *R. Brown*.—Abundant on heaths, especially on river banks, *J. D. Hooker*.

The forms originally distinguished by *J. D. Hooker* as species, are now shown by a number of intermediate specimens to run so much into each other as not to be easily separable as varieties.

8. **B. crassifolia**, *Lindl. in Mitch. Three Exped.* ii. 115. Low and much-branched, often diffuse. Leaves spreading, thickly obovoid or oblong, very obtuse, and $\frac{1}{2}$ to 1 line long, or rarely linear-terete, almost acute and 2 lines or rather longer. Flowers on pedicels of $\frac{1}{2}$ to 1 line, solitary in each axil, and usually 2 or 3 only on short lateral branchlets. Bracteoles so deciduous as to be rarely seen. Calyx-tube broadly turbinate or hemispherical, nearly 1 line diameter; lobes broad, obtuse, nearly as long as the tube, with petal-like margins. Petals twice as long as the calyx-lobes. Stamens 10; filaments all filiform; anther-cells parallel, opening longitudinally, with conspicuous connective-glands. Ovary convex, but not much so, 3-celled with 2 collateral ovules in each cell; style very shortly immersed. Capsule nearly half-superior. Seeds and embryo nearly as in *B. diffusa*, but not so large.—*F. Muell. Fragm.* iv. 66.

N. S. Wales. Deserts of the Darling and Murrumbidgee, *F. Mueller* (I have not seen the specimens).

Victoria. On the Murray and in the Wimmera district, *F. Mueller* and others.

S. Australia. Sandy deserts from Spencer's and St. Vincent's Gulfs to the Murray, *F. Mueller* and others; Kangaroo Island, *Waterhouse*.

Var. (?) *icosandra*, *F. Muell.* Stamens usually 1 opposite each petal, and 2 or sometimes 3 in the intervals.

W. Australia. Limestone cliffs towards the Great Australian Bight, *Maxwell*.—Notwithstanding the difference in foliage and habit, it is possible that these specimens may be a form rather of *B. ericæa* than of *B. crassifolia*.

The linear-leaved specimens of *B. crassifolia* are from the Botanical Garden of Melbourne.

9. **B. tetragona**, *F. Muell. Herb.* Branchlets small, numerous, erect. Leaves imbricate and decussate, ovate or oblong, thick, concave or keeled, obtuse, $\frac{3}{4}$ to nearly 1 line long. Flowers solitary, almost sessile, with 2 concave very deciduous bracts under the calyx. Calyx-tube turbinate, 5-angled, above 1 line long; lobes broadly ovate and petal-like, or 2 outer ones narrower and greener, half as long as the tube. Petals larger than the calyx-lobes. Stamens 10; filaments filiform or slightly dilated at the base; anther-cells parallel, opening longitudinally; connective-gland globular. Ovary flat-topped, 3-celled, with 2 or rarely 3 ovules in each cell. Style shortly immersed. Seeds nearly as in *B. diffusa*.

W. Australia. E. of King George's Sound, *Baxter*; Middle Mount Barren, *Maxwell*; Lucky Bay, *R. Brown*.

10. **B. ericæa**, *F. Muell. Fragm. i. 34.* Small and very much branched, closely resembling the smaller specimens of *Micromyrtus microphylla*, but quite different in the structure of the flowers. Leaves oblong or linear, thick, concave or keeled, very obtuse, $\frac{1}{2}$ to 1 line long, appressed and distant on the larger branches, imbricate and decussate on the smaller ones. Flowers small, solitary, sessile, with broad scarious bracts under the calyx. Calyx-tube very broad, about $\frac{1}{2}$ line long; lobes short, broad, entire, with coloured scarious margins. Petals twice as long as the calyx-lobes. Stamens 15, of which 5 opposite the petals; filaments short, filiform; anther-cells short, parallel, opening longitudinally; connective rather thick. Ovary very convex, 3-celled, with 2 collateral ovules in each cell. Seeds apparently as in *B. diffusa*, but not seen ripe.

Victoria. In the Murray scrub, *F. Mueller*; Wimmera, *Dallachy*.

11. **B. polystemona**, *F. Muell. Fragm. ii. 124.* Leaves crowded, linear or slightly clavate, terete or concave, obtuse, 1 to 2 lines long. Flowers solitary, on short pedicels in the upper axils, with a pair of very deciduous bracts at the base of the pedicels. Calyx-tube very broad, about 2 lines diameter; lobes short, broad, petal-like. Stamens 20 to 30, of which 5 opposite the centre of the petals; filaments filiform; anther-cells parallel, opening longitudinally; connective-gland rather large. Ovary convex, 3-celled, with about 8 ovules in each cell; style shortly immersed.

N. Australia. Brindley's Bluff, *M'Douall Stuart's Expedition*. Described from a single small specimen in Herb. F. Muell. The more numerous ovules and indefinite stamens might refer it to the following section, but that there appears always to be a stamen opposite the centre of each petal as in *Euryomyrtus*.

SECTION III. SCHIDIOMYRTUS.—Stamens few or numerous, but none opposite the centres of the petals; filaments filiform; anther-cells distinct, parallel, and opening longitudinally to the base. Ovary 2-celled, or in *B. astarteoides* 3-celled, with several ovules in each cell. Flowers solitary in each axil.

12. **B. crenulata**, DC. *Prod.* iii. 230. Branches virgate. Leaves broadly obovate or orbicular, flat or concave, obtuse or almost acute, usually minutely denticulate-ciliate, often imbricate, $1\frac{1}{2}$ to nearly 3 lines long, the floral ones mostly longer than the others. Flowers nearly sessile along the branches, solitary in each axil, shorter than or scarcely exceeding the leaves. Bracteoles ovate-lanceolate, concave, deciduous. Calyx-tube about 1 line long, the adnate part narrow-turbinate, the free part broad; lobes ovate, $\frac{1}{2}$ line long, slightly scarious on the edges. Petals shortly exceeding the calyx-lobes. Stamens 10 or fewer, not opposite the centre of the petals; anthers small, didymous, the cells opening longitudinally; connective-gland inconspicuous. Ovary 2-celled, with 6 to 10 ovules in each cell; style shortly immersed. Seeds obovoid, more or less angular; testa thinly crustaceous; thin end of the embryo closely folded against the radicle, otherwise straight.—R. Br. in Flind. Voy. App. 548; F. Muell. *Fragm.* iv. 65; *Jungia imbricata*, Gærtn. *Fruct.* i. 175. t. 35 (incorrect as to the details); *Mollia imbricata*, Gmel. *Syst. Veg.* 420; *Imbricaria crenulata*, Sm. in *Trans. Linn. Soc.* iii. 259; *Stereoxylon crenulatum*, Poir. *Diet. Suppl.* v. 246; *Escallonia crenulata*, Ræm. and Schult. *Syst.* v. 329; *Bækea diosmoides*, Sieb. in DC. *Prod.* iii. 230; *Schidiomyrtus crenulata* and *S. Sieberi*, Schau. in *Linnæa*, xvii. 237.

N. S. Wales. Port Jackson, *R. Brown*; *Sieber* n. 277, and *Fl. Mixt.* n. 611, and others, and southward to Illawarra, *Shepherd*.

Var. *tenella*. Leaves smaller; flowers very much smaller, but not otherwise different. *Jungia tenella*, Gærtn. *Fruct.* i. 175. With the larger variety from most collectors.

13. **B. brevifolia**, DC. *Prod.* iii. 230. Branches numerous, slender, erect. Leaves decussate, triquetrous, thick and very obtuse, $\frac{1}{2}$ to 1 line long. Flowers solitary in the upper axils, on pedicels of from $\frac{1}{2}$ to nearly 2 lines. Bracteoles very deciduous. Calyx-tube turbinate, 1 to $1\frac{1}{2}$ lines long, very broad at the top; lobes short, broad, not scarious. Petals about 1 line long. Stamens about 15, none opposite the centre of the petals; anther-cells parallel, opening longitudinally; connective-gland small. Ovary nearly flat-topped, 2-celled, with 8 to 10 ovules in each cell; style not very deeply immersed.—*Leptospermum brevifolium*, Rudge in *Trans. Linn. Soc.* viii. 299. t. 14; *Bækea carnosula*, Sieb. in *Spreng. Syst. Cur. Post.* 149.

N. S. Wales. Port Jackson, *R. Brown*; *Sieber*, n. 278, and others.

14. **B. Gunniana**, Schau. in *Walp. Rep.* ii. 921. A densely-branched shrub, either low and prostrate or erect and bushy, attaining 5 or 6 ft. Leaves spreading, flat or concave, from obovate-oblong and scarcely 1 line long, to linear or linear-cuneate, and 3 or even 4 lines long, obtuse or scarcely mucronate-acute. Flowers solitary in the upper axils, on pedicels of 1 to nearly 2 lines. Bracteoles under the calyx so deciduous as to be rarely seen. Calyx-tube turbinate, about 1 line long, very broad at the top; lobes not half as long as the tube, petal-like, obtuse, separated by rather broad sinuses. Petals above 1 line diameter. Stamens 10 or fewer, none opposite the centres of the petals; filaments filiform; anther-cells parallel, opening longitudinally; connective-gland rather prominent. Ovary flat-topped, 2-celled, with 10 to 12 ovules in each cell. Seeds obovoid, more or less angular; testa thinly coriaceous; slender end of the embryo folded against the radicle,

but otherwise straight.—Hook. f. *Fl. Tasm.* i. 142; F. Muell. *Fragm.* iv. 66; *B. micrantha*, Hook. f. in Hook. *Ic. Pl. t.* 309, not of DC.; *B. utilis*, F. Muell.; Miq. in *Ned. Kruidk. Arch.* iv. 150; *Tetrapora Gunniana*, Miq. l. c.

N. S. Wales. Mount Mitchell, *Beckler*.

Victoria. Common in boggy places in the Australian Alps, *F. Mueller*.

Tasmania. Summit of Table Mountain, *R. Brown*; abundant in alpine places, *J. D. Hooker*.

Var. *latifolia*. Leaves ovate-oblong, 3 to 4 lines long. Baw-Baw Mountains, *F. Mueller*.

15. **B. diosmifolia**, *Rudge in Trans. Linn. Soc.* viii. 298. t. 13. Erect or diffuse and much branched, from a thick woody stock. Leaves linear, narrow, oblong, or somewhat cuneate, concave or semiterete, obtuse or mucronulate-acute, more or less denticulate-ciliate, 1 to 2 lines long. Flowers nearly sessile and solitary in the upper axils. Bracteoles obovate-cuneate, concave, as long as the calyx-tube, very deciduous. Calyx-tube turbinate, about $1\frac{1}{2}$ lines long; lobes ovate, denticulate-ciliate. Petals about 1 line diameter. Stamens 7 to 10, none opposite the centre of the petals; filaments filiform; anther-cells parallel, opening longitudinally; connective-gland globular. Ovary small, 2-celled, with about 4 ovules in each cell.—DC. *Prod.* iii. 230; F. Muell. *Fragm.* i. 29.

N. S. Wales. Port Jackson, *R. Brown*, *F. Mueller*, and others; Paramatta, *A. Cunningham*, *Woolfs*.—In all the flowers I examined of Woolfs's specimens, the ovary was in a monstrosous state, with the ovules all abortive, but with several more or less perfect stamens on the walls of the cavity.

16. **B. leptocaulis**, *Hook. f. in Hook. Ic. Pl. t.* 298, and *Fl. Tasm.* i. 141. Branches erect, from a thick woody base, slender, 1 to 2 ft. high. Leaves linear, concave or semiterete, obtuse or with a short erect point, mostly 3 to 4 lines long. Flowers solitary in the upper axils, on pedicels at least as long as the calyx-tube, with 2 small very fugacious bracteoles at the base. Calyx-tube turbinate, under 1 line long, tapering into the pedicel; lobes small, ovate or oblong, usually separated by marked intervals. Petals nearly 1 line diameter. Stamens about 5, none opposite the centre of the petals; filaments filiform; anther-cells parallel, opening longitudinally; connective-gland very small or none. Ovary 2-celled, with 8 to 10 ovules in each cell.

Tasmania. Abundant on Loddon Plains, on the road to Macquarrie Harbour; top of Rocky Cape, *Gunn*.—This plant is very nearly allied to the narrow-leaved forms of *B. Gunniana*.

17. **B. arbuscula**, *R. Br. Herb.* A slender, erect; bushy, heath-like shrub, scarcely exceeding 6 in., with very numerous filiform branches, quite glabrous. Leaves slender, linear-terete or slightly flattened, 1 to 2 lines long. Pedicels axillary, solitary, 1-flowered, about $\frac{1}{2}$ line long. Flowers the most minute in the Order. Calyx about $\frac{1}{2}$ line long, turbinate, with 5 lobes, not one-third as long as the tube. Petals not twice as long as the calyx-lobes, spreading. Stamens 5 or fewer; anthers with distinct nearly globular cells opening longitudinally. Ovary 2-celled?

W. Australia. King George's Sound, *R. Brown*. I do not feel certain of having correctly ascertained the structure of the ovary, but the species is evidently allied to *B. leptocaulis*, although the excessive minuteness of the flowers gives it a very different aspect.

18. **B. astarteoides**, *Benth.* A shrub of 2 or 3 ft., with elongated branches. Leaves linear, semiterete or triquetrous, often slightly clavate, obtuse, 2 to 3 lines long, densely clustered on the short axillary branchlets. Flowers small, pink, solitary, on short pedicels, articulate about or above the middle. Bracteoles all fallen from the specimens seen. Calyx-tube turbinate when young, at length hemispherical, scarcely above 1 line diameter; lobes short, broad, with scarious margins. Petals less than 1 line long, much narrowed at the base. Stamens about 6 to 8, none opposite the centre of the petals; filaments filiform; anther-cells parallel, opening longitudinally; connective-gland small. Ovary 2- or 3-celled, with about 8 ovules in each cell; stigma rather broad. Capsule slightly convex. Seeds not angled.

W. Australia. King George's Sound, *R. Brown*, *A. Cunningham*; along the coast from Bremer Bay, to Experience Bay and inland from Cape Le Grand, *Maxwell*; Lucky Bay, *R. Brown* (with a much smaller style and stigma).—This much resembles *Astartea fascicularis*, but the filaments are quite distinct and distant from each other.

19. **B. linifolia**, *Rudge in Trans. Linn. Soc. viii. 297. t. 12.* Tall and erect, with slender virgate branches. Leaves very narrow-linear, semiterete or concave, acute, in some specimens all above $\frac{1}{2}$ in., attaining $\frac{3}{4}$ or even 1 in., in others mostly $\frac{1}{4}$ to $\frac{1}{2}$ in. long. Flowers small, solitary in the upper axils, almost sessile or on pedicels rarely attaining 1 line. Calyx-tube turbinate or at length almost urceolate; lobes very broad and short, scarcely pointed. Petals about 1 line diameter. Stamens 10 to 15, none opposite the centre of the petals; filaments filiform; anther-cells parallel, opening longitudinally; connective-gland small. Ovary flat-topped, 2-celled, with 15 to 20 ovules in each cell round an orbicular almost peltate placenta. Capsule separating readily from the calyx-tube. Seeds small, angular. Embryo with the slender cotyledonar end closely folded against the radicle, but otherwise straight.—*DC. Prod. iii. 229*; *F. Muell. Fragm. iv. 71*; *B. trichophylla*, *Sieb. in Spreng. Syst. Cur. Post. 149.*

N. S. Wales. Port Jackson to the Blue Mountains, *R. Brown*, *Sieber, n. 280*, and others.

Var. (?) *brevifolia*, *F. Muell. Fragm. iv. 72.* Leaves shorter and more rigid.

Victoria. Boggy places, near Mount Imlay, *F. Mueller.* I refer this here, on the authority of *F. Mueller.* The specimens appear to me to have rather the aspect, foliage, and calyx of *B. leptocaulis*, but being only in a far advanced fruiting stage, they cannot be accurately determined.

20. **B. stenophylla**, *F. Muell. Fragm. i. 13.* Branches slender, virgate. Leaves slender, linear, semiterete, obtuse, 2, 3 or rarely 4 lines long, mostly crowded or clustered on the short axillary shoots. Flowers very small, shortly pedicellate, solitary in each axil, but often forming little leafy corymbs, on short axillary shoots. Bracteoles narrow, at the base of the pedicel. Calyx-tube narrow-turbinate, $\frac{3}{4}$ line long; lobes small, broad, very obtuse. Petals about $\frac{1}{2}$ line diameter. Stamens 5 or 6, none opposite the centre of the petals; filaments filiform; anther-cells parallel, opening longitudinally; connective-gland inconspicuous. Ovary 2-celled, with 16 to 20 ovules closely packed round an oblong somewhat peltate placenta.

Queensland. Moreton Island, *F. Mueller.* This differs chiefly from *B. linifolia* in its slender habit and foliage and small narrow flowers. Both are nearly allied to *B. frutes-*

cens, Linn., a common species in the Eastern Archipelago and S. China, distinguished from them chiefly by the more open calyx, and the ovary almost always 3-celled.

SECTION IV. HARMOGIA.—Stamens few or numerous, but none opposite the centres of the petals; filaments filiform or rarely clavate; anther-cells distinct, nearly globular, parallel or divergent, deeply furrowed and opening more or less in longitudinal slits in the furrows. Ovary 3-celled, with several ovules in each cell. Flowers solitary or 2, 3 or more together on a short common peduncle.

The anthers in this and the following section are intermediate, as it were, between those of *Euryomyrtus* and of *Babingtonia*. In the first four species of *Harmogia*, they are very nearly those of *Euryomyrtus*, except that the cells are more globular and do not open quite so deeply in 2 valves; in *B. densifolia* and *B. Behrii*, the slits are almost shortened into pores. In *Oxymyrrhine*, the dehiscence is nearly the same, but the furrows of the cells are as deep as those which separate the cells, so that the anthers appear to have 4 cells similar to the two of *Babingtonia*, and the slits are shortened into pores. In some specimens, however, it is often very difficult to draw any marked line between the several modifications.

21. **B. camphorata**, *R. Br. in Bot. Mag. t. 2694*. Erect, with somewhat virgate branches. Leaves from linear-oblong or slightly cuneate to broadly oblong or almost obovate, flat, obtuse or nearly so, $1\frac{1}{2}$ to 3 lines long. Flowers rather small, solitary or in clusters of 2 or 3, on short pedicels with concave very deciduous bracteoles at the base, without any conspicuous common peduncle. Calyx-tube campanulate, not 1 line long; lobes small, broadly ovate, petal-like, half as long as the petals. Petals about $1\frac{1}{4}$ line long, almost clawed. Stamens about 15, none opposite the centre of the petals; filaments filiform; anther-cells nearly globular, but parallel and opening more or less deeply in longitudinal slits. Ovary flat-topped, 3-celled, with 10 to 20 ovules in each cell round a small slightly peltate placenta; style inserted in a deep tubular central depression. Capsule slightly convex.—DC. Prod. iii. 230; F. Muell. Fragm. iv. 70; *Leptospermum imbricatum*, Sm. in Trans. Linn. Soc. vi. 300; *Camphoromyrtus Brownii*, Schauer in Linnaea, xvii. 240.

N. S. Wales. Paramatta, *R. Brown, Wools.*

22. **B. virgata**, *Andr. Bot. Rep. t. 598*. Usually tall erect and loosely branched, attaining 10 to 12 ft., rarely low and diffuse. Leaves from linear-lanceolate to narrow-oblong, flat and often 1- or 3-nerved, usually acute and $\frac{1}{2}$ to 1 in. long, but in some specimens all under $\frac{1}{2}$ in. long, and occasionally some or nearly all obtuse both in the short- and long-leaved forms. Flowers small in the upper axils, usually several together in a loose umbel, on a common peduncle of 2 to 4 lines, the pedicels varying from 1 to 3 lines. Calyx-tube turbinate, at length hemispherical, about $1\frac{1}{2}$ lines diameter; lobes short and broad, the midrib more or less produced into a conical point or protuberance. Petals about $1\frac{1}{2}$ lines diameter. Stamens 5 to 15, none opposite the centre of the petals; filaments filiform; anthers didymous, the cells globular, furrowed, opening in short slits; connective thickened into a gland almost as long as the cells. Ovary 3-celled, with 15 to 20 ovules in each cell round a peltate placenta. Capsule nearly flat-topped. Seeds usually angular. Embryo with the slender inflected end very short, with 2 small ovate cotyledons.—DC. Prod. iii. 229; Bot. Mag. t. 2127; Lodd. Bot. Cab. t. 341; Colla, Hort. Ripul. t. 6; F. Muell. Fragm. iv. 69; *Leptospermum*

virgatum, Forst. Char. Gen. 48; *Melalenca virgata*, Linn. fil. Suppl. 343; *Harmogia virgata*, Schau. in Linnæa, xvii. 238; *Camphoromyrtus pluriflora*, F. Muell. in Trans. Vict. Inst. i. 123; *Harmogia umbellata*, F. Muell. Fragm. ii. 31; *Bækea umbellata*, F. Muell. Fragm. iv. 69; *Babingtonia virgata*, F. Muell. Fragm. iv. 74.

N. Australia. Sandstone precipices, Victoria river, rare, *F. Mueller*.

Queensland, *Bidwill*; Upper Brisbane river, *F. Mueller*; Moreton Bay, *C. Stuart*; Pine river, *Fitzalan*; Rockhampton, *Dallachy*.

N. S. Wales. Grose and Hawkesbury rivers, *R. Brown*; Blue Mountains, *A. Cunningham*; northward to Macleay river, *Beckler*.

Victoria. On the Suowy and Tambo rivers, *F. Mueller*.

The species is also in New Caledonia.—*B. parvula*, DC. Prod. iii. 229 (*Leptospermum parvulum*, Labill. Ser. Austr. Caled. 62. t. 61. *Harmogia parvula*, Schauer in Linnæa, xvii. 238), also from New Caledonia, is a slight variety, only differing in the shorter more obtuse leaves. The same variety, with even still shorter oblong leaves, is amongst the Queensland specimens communicated by *Bidwill*.

23. ***B. crenatifolia***, *F. Muell. Fragm.* iv. 70. A tall shrub, attaining 10 ft., with erect or pendulous branches. Leaves ovate obovate oblong or almost orbicular, flat, obtuse, minutely crenulate, 2 to 3 lines long. Flowers nearly of *B. virgata*, usually 2 or 3 together, on a common slender peduncle of 2 or 3 lines; pedicels also slender, with minute, very fugacious bracteoles at their base. Calyx-tube hemispherical, fully $1\frac{1}{2}$ lines broad; lobes very short and broad, without any or only a very small dorsal protuberance. Petals fully $1\frac{1}{2}$ lines diameter. Stamens 10 to 15, none opposite the centre of the petals; filaments thickened into a gland at or a little below the top; anthers globose, didymous, the cells opening in slits in the deep furrows. Ovary 3-celled, with 15 to 20 ovules in each cell round a peltate placenta; style rather deeply immersed.—*Camphoromyrtus crenulata*, *F. Muell.* in Trans. Vict. Inst. i. 123; *Harmogia crenulata*, *F. Muell.*; *Miq.* in Nederl. Kruidk. Arch. iv. 148.

Victoria. Along springs and rivulets, Buffalo Range, *F. Mueller*.

24. ***B. Cunninghamii***, *Benth.* Branches slender and apparently diffuse. Leaves obovate or orbicular, thick, but flat or nearly so, and very obtuse, mostly under 1 line diameter. Flowers small, either solitary, on slender pedicels of about 1 line, with 2 small fugacious bracteoles at the base, or 2 or 3 together, on a short common peduncle, with a similar bracteole at the base of each pedicel. Calyx-tube at first turbinate, but soon hemispherical; lobes short and broad, with a thick conical point or protuberance either dorsal or nearly terminal. Petals about 1 line diameter. Stamens about 5, none opposite the centre of the petals; filaments slightly thickened near the end; anthers globose, didymous, the cells opening in short slits in the deep furrows. Ovary 3-celled, with above 10 ovules in a ring round the placenta; style deeply immersed. Seeds angular, but not seen ripe.—*Harmogia Cunninghamii*, Schau. in Walp. Rep. ii. 921.

N. S. Wales. Bushy forest country, W. of Wellington Valley, *A. Cunningham*.

25. ***B. densifolia***, *Sm. in Trans. Linn. Soc.* iii. 260. Branches rather slender, but rigid and virgate. Leaves crowded and decussate on the smaller branches, linear, slender, semiterete or concave, obtuse or with a minute re-

curved point, mostly 2 to 3 lines long. Flowers solitary in the upper axils, often forming short terminal leafy racemes or corymbs. Pedicels 1 to 2 lines long, with a pair of small deciduous bracteoles below the middle. Calyx-tube broadly turbinate; lobes short, broadly triangular. Petals about $1\frac{1}{2}$ lines diameter. Stamens usually 8 or 9, but sometimes as many as 12, none opposite the centre of the petals; filaments filiform; anthers nearly globular, the cells unequally furrowed and opening in the furrows in short slits; connective-gland conspicuous or small, or wholly disappearing. Ovary flat-topped, usually 3-celled, with about 8 ovules in each cell in the ordinary form; style shortly immersed. Seeds angular; embryo with the slender cotyledonar end short and appressed against the radicle, otherwise straight.—DC. Prod. iii. 230; F. Muell. Fragm. iv. 71; *B. fasciculata*, Sieb. in Spreng. Syst. Cur. Post. 149; *Harmogia densifolia*, Schau. in Linnæa, xvii. 238; *Babingtonia densifolia*, F. Muell. Fragm. iv. 74; *Harmogia Baueriana*, Schau. in Walp. Rep. ii. 921, from the character given.

N. S. Wales. Port Jackson to the Blue Mountains, *R. Brown*, *Sieber*, n. 279, and others; New England, *C. Stuart*.

The structure of the anthers in this species is so nearly that of the following section, that I feel doubts as to having correctly placed it in the present one. It varies much in the size of the flower, the length of the pedicel, and attenuate base of the calyx, and the number of ovules. *Harmogia propinqua*, Schau. in Walp. Rep. ii. 921, has smaller flowers, the calyx-tube almost close above the bracteoles, and the connective-gland very small or none. *Bækea Novo-anglica*, F. Muell. Fragm. iv. 71, or *Babingtonia Novo-anglica*, F. Muell. l.c. 74, has rather larger flowers, the calyx attenuate into a pedicel more distinct than in *H. propinqua*, shorter than in the common form, the connective-gland small or none, and ovules more numerous than usual; the stamens also vary in number and in the degree of dehiscence of the anther-cells; but I find, after examining a considerable number of specimens, that these differences pass so gradually one into the other, that I am unable to characterize the several forms even as distinct varieties.

26. **B. Behrii**, F. Muell. Fragm. iv. 68. A tall handsome shrub, with erect virgate branches. Leaves erect or spreading, rather distant, linear, semiterete or triquetrous, with a rather thick recurved point, 2 to 4 lines long. Flowers solitary and pedicellate, or very rarely 2 on a common peduncle, one pedicellate, the other sessile. Bracteoles so fugacious as to be rarely seen. Calyx-tube turbinate; lobes exceedingly short and broad. Petals fully $1\frac{1}{2}$ lines diameter. Stamens 8 to 15, none opposite the centre of the petals; filaments clavate; anthers didymous, the cells unequally furrowed and opening in the furrows in short slits. Ovary flat-topped, 3-celled, with 10 to 15 ovules in each cell round a somewhat peltate placenta; style immersed in a rather deep tubular depression and scarcely projecting above it.—*Camphoromyrtus Behrii*, Schlecht. Linnæa, xx. 651.

N. S. Wales. On the Lachlan, Murrumbidgee, and Darling, according to F. Mueller. (I have not seen the specimens.)

Victoria. Murray Desert, F. Mueller; Wimmera, Dallachy.

S. Australia. Port Lincoln, *R. Brown*; St. Vincent's and Spencer's Gulf to the Murray, *Behr*, F. Mueller, and others; and inland to Lake Gillies, *Burkett*.

W. Australia. Specimens from Lucky Bay, *R. Brown*, exactly like the S. Australian ones, and apparently distinct from *R. uncinella*.

The species is nearly allied to *B. densifolia*, differing in foliage, in its rather larger flowers, the remarkably short calyx-lobes, and the clavate filaments, and the slits of the anther-cells, apparently shorter, bringing it still nearer to the following section.

SECTION V. OXYMYRRHINE.—Stamens few or numerous, but none opposite the centre of the petals (except in *B. polyandra*); filaments filiform. Anther-cells more or less united at the base, didymous, deeply furrowed and opening in pores in the furrows, giving the whole anther the appearance of 4 collateral globular cells, either all equal or the 2 central ones smaller, the connective-gland sometimes appearing like a fifth. Ovary 3-celled, with numerous ovules in each cell.

This section might almost be united with the previous one, but the anthers appear to me to form a nearer approach to those of *Babingtonia*. The species are all western, whilst the *Harmogias* are eastern.

27. **B. uncinella**, *Benth.* Branches rather slender. Leaves erect or spreading, rather distant, linear or linear-cuneate, semiterete or triquetrous, with short recurved points, 2 to 3 lines long. Flowers usually 3 together, on short, slender peduncles, the pedicels longer than the calyx-tube. Bracteoles none or exceedingly fugacious. Calyx-tube turbinate, about 1 line long; lobes short and obtuse. Petals little more than 1 line diameter. Stamens about 8, none opposite the centre of the petals; filaments short, not clavate; anther-cells shortly united, deeply furrowed, giving the appearance of 4 collateral lobes of the anther, the 2 central ones smaller than the others, and opening in the furrows in pores or very short slits; connective-gland small. Ovary 3-celled, with 15 to 20 ovules in each cell, round a small peltate placenta; style rather deeply immersed.

W. Australia. Plains E. of Stokes Inlet, *Maxwell*. F. Mueller, *Fragm.* iv. 69, thinks that this may be a western variety of *B. Behrii*, but it appears to me to differ in inflorescence, in stamens, and in the number of ovules, as well as in some points in the calyx and general aspect. I have, however, only seen two specimens.

28. **B. polyandra**, *F. Muell. Fragm.* iv. 72. Branches slender but rigid. Leaves linear, semiterete or triquetrous, decussate on the smaller branches, obtuse or with a minute recurved point, rarely exceeding 2 lines. Flowers solitary, on pedicels of 1 to 2 lines, articulate with lanceolate bracteoles close under the calyx or at very little distance from it. Calyx-tube turbinate-campanulate, 5-ribbed; lobes short, erect, acute, herbaceous or slightly scarious on the margin and denticulate at the base. Petals above $1\frac{1}{2}$ lines diameter. Stamens 20 to 25, in a single row, those opposite the centre of the petals present and rather larger than the others; filaments thick; anther-cells deeply furrowed, opening in pores in the furrows, the whole anther showing 4 globular, collateral lobes round the more or less prominent connective-gland. Ovary 3-celled, with numerous ovules in each cell in a ring round the peltate placenta; style immersed in a rather deep central depression.—*Oxymyrrhine gracilis*, Schau. in *Linnæa*, xvii. 240; *Babingtonia gracilis*, F. Muell. *Fragm.* iv. 74.

W. Australia. King George's Sound, or to the eastward, *R. Brown, Baxter*; sea-coast, E. of Stokes Inlet, and inland from Orleans Bay, *Maxwell*.

29. **B. corynophylla**, *F. Muell. Fragm.* iv. 72. Branches apparently loose and elongated. Leaves not crowded, linear-clavate or cuneate, thick, channelled above, more or less recurved at the end and often laterally compressed, very obtuse, $1\frac{1}{2}$ to nearly 3 lines long. Peduncles short, crowded

at the ends of the branches, bearing each 2, 3 or rarely only 1 flower, on pedicels of 1 line or rather more, the bracteoles very small and narrow. Calyx-tube slightly turbinate, about 1 line long; lobes longer and less obtuse than in most allied species. Petals nearly $1\frac{1}{2}$ lines diameter. Stamens 6 to 8, none opposite the centres of the petals; anther-cells deeply furrowed, opening in pores or short slits in the furrows, the whole anther showing 4 globular, collateral lobes round the globular connective. Ovary flat-topped, 3-celled, with about 10 to 12 ovules in each cell round a slightly peltate placenta; style rather deeply immersed.—*Harmogia corynophylla*, F. Muell. Fragm. ii. 30; *Babingtonia corynophylla*, F. Muell. Fragm. iv. 74.

W. Australia, Drummond, 5th Coll. n. 127; Fitzgerald ranges, Maxwell.

30. *B. pachyphylla*, Benth. Branches apparently loose and elongated. Leaves not crowded, obovate-oblong, very thick and obtuse, 1 to $1\frac{1}{2}$ lines long. Pedicels $1\frac{1}{2}$ to 2 lines long or rather more, solitary or 2 or 3 together on a short common peduncle, with small very fugacious bracteoles at their base. Calyx-tube turbinate or at length nearly globular, about 1 line long; lobes short, broad, obtuse, scarious only at the margin. Petals about $1\frac{1}{2}$ lines diameter. Stamens 5 or fewer, none opposite the centre of the petals; filaments filiform; anther-cells united at the base, deeply furrowed, opening shortly in the furrows, giving the appearance of 4 collateral lobes, the 2 central ones smaller than the lateral ones as in *D. uncinella*. Ovary 3-celled with 8 to 10 ovules in each.

W. Australia. In the interior from the south coast, Maxwell. A single specimen in Herb. F. Mueller, which I am unable to refer to any other species. The structure of the flowers is nearly that of *B. corynophylla*, with the foliage and habit more of *B. floribunda*.

31. *B. crispiflora*, F. Muell. Fragm. iv. 72. Much branched and often somewhat glaucous. Leaves broadly ovate or obovate, erect or spreading, very concave and obtuse or the midrib slightly produced into a point, 1 to $1\frac{1}{2}$ lines long. Flowers solitary, on pedicels much longer than the leaves, articulate above the middle with a pair of linear leaf-like bracteoles. Calyx-tube urceolate, about 1 line long; lobes short, broad, and rather thick. Petals rather above 1 line diameter, usually much undulate on the margin. Stamens 15 to 20, none opposite the centre of the petals; filaments thickened at the base; anther-cells deeply furrowed, opening shortly in the furrows, giving the appearance of 4 collateral equal lobes round the globular connective as in *D. polyandra*. Ovary 3-celled, with numerous ovules in each cell round a peltate placenta; style rather deeply immersed. Seeds angular; embryo with the short slender cotyledonar end appressed against the radicle, but otherwise straight.—*Harmogia crispiflora*, F. Muell. Fragm. ii. 31; *Babingtonia crispiflora*, F. Muell. Fragm. iv. 74.

W. Australia, Drummond, 1st Coll. and 3rd Coll. n. 38.

SECTION VI. BABINGTONIA.—Stamens few or more frequently numerous, none opposite the centre of the petals, or rarely forming a complete ring when above 20, filaments filiform or clavate; anther-cells united into an obcordate or almost globular anther, and opening in terminal pores or short slits. Ovary 3-celled with several, often numerous, ovules round a more or less peltate placenta. Flowers solitary or umbellate.—All Western species.

32. **B. camphorosmæ**, *Endl. in Hueg. Enum.* 51. Either low and spreading, or erect and attaining 2 ft. or more; branches usually long and virgate, with numerous short branchlets. Leaves crowded on the branchlets, in some specimens occasionally alternate, linear, semiterete or triquetrous, obtuse or with a minute straight point, mostly $1\frac{1}{2}$ to 2 lines long, or those on the main branches longer and distant. Flowers white or pink, on very short pedicels, solitary or more frequently clustered on a very short common peduncle, with a small deciduous bracteole at the base of each pedicel, the clusters usually forming a long terminal usually one-sided leafy raceme. Calyx-tube broadly turbinate or at length urceolate, about 1 line long; lobes broad, short, scarious, and minutely denticulate, the thick centre sometimes produced into a short conical point. Petals above $1\frac{1}{2}$ lines diameter. Stamens 10, none opposite the centre of the petals; filaments thick, continuous with the connective; anthers thick, obcordate or almost didymous, the cells not furrowed, opening in small terminal pores. Ovary 3-celled, with about 10 ovules in each cell on a placenta ascending from the base; style immersed in a deep tubular central depression. Embryo with very minute ovate cotyledons.—*Babingtonia camphorosmæ*, *Lindl. Bot. Reg.* 1842, t. 10; *Schau. in Pl. Preiss.* i. 109.

W. Australia. King George's Sound to Swan River, *Fraser, Drummond, 1st Coll.*, *Preiss.* n. 347, 349, and others. Vasse River, *Preiss.* n. 348. One of the grounds on which the genus *Babingtonia* was formed was on the supposed perforation of the ovary in the centre through which the style passed in direct continuation of the placenta, but this appears to be a mistake. The style in this and many other capsular *Myrtaceæ* is ventrally or almost basally attached to the carpels, as in *Labiatae*, *Chrysobalanaceæ*, many *Rutaceæ*, etc., but the carpels are united so as to form a ring or slender tube close round the style but free from it.

33. **B. pulchella**, *DC. Prod.* iii. 230, and *Mem. Myrt.* t. 13? Erect with numerous slender branches. Leaves slender, semiterete or triquetrous, mostly about 1 line long, crowded or decussate on the smaller branches. Flowers small, mostly solitary, on slender pedicels longer than the leaves and articulate below the middle with a pair of leaf-like bracteoles. Calyx-tube rather broad, about $\frac{3}{4}$ line long; lobes short, obtusely triangular. Petals about 1 line diameter. Stamens 25 to 30 in a single dense ring; filaments rather thick; anthers nearly globular, the cells united, furrowed, opening in short slits in the furrows. Ovary flat-topped, 3-celled, with many ovules in each cell round a peltate placenta; style rather deeply immersed.—*Ericomyrtus Drummondii*, *Turez. in Bull. Mosc.* 1847. i. 155.

W. Australia, *Drummond, 3rd Coll.* n. 86.

I have not seen authentic specimens of De Candolle's plant, but this is the only species I have found to agree with his short diagnosis and figure in everything except the bracteoles, which, however, De Candolle may have considered as stem leaves.

34. **B. pygmæa**, *R. Br. Herb.* Slender and erect or spreading, from a few inches to nearly 1 ft. high. Leaves linear-terete, obtuse or almost acute, 1 to $1\frac{1}{2}$ or rarely 2 lines long. Peduncles in the upper axils filiform, bearing 1 or 2 very small flowers on filiform pedicels usually exceeding the leaves. Calyx about $\frac{1}{2}$ line long, with 5 short herbaceous teeth. Petals about $\frac{1}{4}$ line diameter. Stamens about 10, none opposite the centre of the petals; anthers

nearly globular, the cells connate and opening at the top in short pores. Ovary 3-celled, with several ovules in each cell; style deeply immersed.

W. Australia. King George's Sound, *R. Brown*. Near *R. pulchella*, but with very much smaller flowers and fewer stamens.

35. **B. corymbulosa**, *Benth.* Small, with numerous slender branchlets. Leaves oblong or almost linear-cuneate, rather thick, concave, obtuse, mostly under 1 line long. Flowers very small, in little terminal leafy corymbs, solitary or 2 or 3 together in each axil on a slender peduncle shortly exceeding the leaves, the pedicels often nearly as long as the common peduncle. Calyx-tube ovoid, about $\frac{1}{2}$ line long; lobes very short and obtuse. Petals about $\frac{1}{2}$ line diameter. Stamens 10 to 15, none opposite the centre of the petals; anthers nearly globular, the cells united nearly to the top and opening in oblong pores or short slits. Ovary nearly flat-topped, 3-celled, with numerous ovules in each cell round a peltate placenta; style deeply immersed.

W. Australia, *Drummond*, 5th Coll. Suppl. n. 25.

36. **B. floribunda**, *Benth.* Nearly allied to *B. pentandra*, and perhaps a variety, but the leaves are much shorter and thicker, oblong or almost ob-ovoid, and under 1 line long except on the main luxuriant branches, where they are linear-distant and appressed. Peduncles longer than the leaves, bearing 1 to 5 flowers, larger than in *B. pentandra*, with similar stamens, but there appear to be always 10, none, however, opposite the centre of the petals. Ovary flat-topped, 3-celled, with 8 to 10 ovules in each cell round a peltate placenta; style deeply immersed.

W. Australia, *Drummond*, n. 9, 138, and 3rd Coll. n. 37.

37. **B. pentandra**, *F. Muell. Fragm.* iv. 72. Erect, with rather slender virgate branches of 1 to 2 ft., and numerous small branchlets. Leaves linear, semiterete or triquetrous, very obtuse, $\frac{3}{4}$ to $1\frac{1}{2}$ lines long, decussate on the smaller branches. Peduncles short, bearing 1 to 3 flowers on pedicels of about 2 lines, with small linear deciduous bracteoles at their base. Calyx-tube short, about $\frac{3}{4}$ line diameter; lobes broad, very obtuse, scarious with thickened centres. Petals at least 1 line diameter. Stamens 5 or sometimes 6, not opposite the petals; filaments short; anthers nearly globular, the cells united nearly to the top and slightly furrowed, opening in terminal pores; connective thick. Ovary flat-topped, 3-celled, with 4 to 6 ovules in each cell round a small placenta; style deeply immersed in a tubular depression of the ovary.—*Harmogia pentandra*, *F. Muell. Fragm.* ii. 31; *Tetrapora Preissiana*, Schau. in *Linnaea*, xvii. 283, and in *Pl. Preiss.* i. 107; *Babingtonia pentandra* and *B. Preissiana*, *F. Muell. Fragm.* iv. 74.

W. Australia, *Drummond*, 5th Coll. n. 117, *Preiss.* n. 345; Gardiner's River, Plantagenet and Stirling ranges, *Maxwell*.

38. **B. pentagonantha**, *F. Muell. Fragm.* iv. 73. A large bushy shrub of 6 to 8 ft., with numerous small erect branches. Leaves decussate on the smaller branchlets, broadly ovate or orbicular, rather thick, concave and keeled, very obtuse, rarely exceeding 1 line. Flowers solitary in the upper axils on very short pedicels, articulate with linear bracteoles about the middle. Calyx-tube $1\frac{1}{2}$ lines long, very prominently 5-angled or almost

winged; lobes short, broad, with scarious margins. Petals not above 1 line diameter. Stamens 15 to 20, none opposite the centres of the petals; anther-cells united, globular, opening in terminal pores or short slits, connective-gland globular and prominent. Ovary flat or concave at the top, 2-celled, with 8 to 10 ovules in each cell round a peltate placenta; style not very deeply immersed.—*Babingtonia pentagonantha*, F. Muell. *Fragm.* iv. 74.

W. Australia. Murchison river, *Oldfield*, and apparently the same species but the specimens not in flower, Sharks' Bay, *Denham*; Dirk Hartog's island, *Milne*. The prominent angles of the calyx are much more conspicuous in this than in *B. polyandra*, and readily distinguish the species from all others.

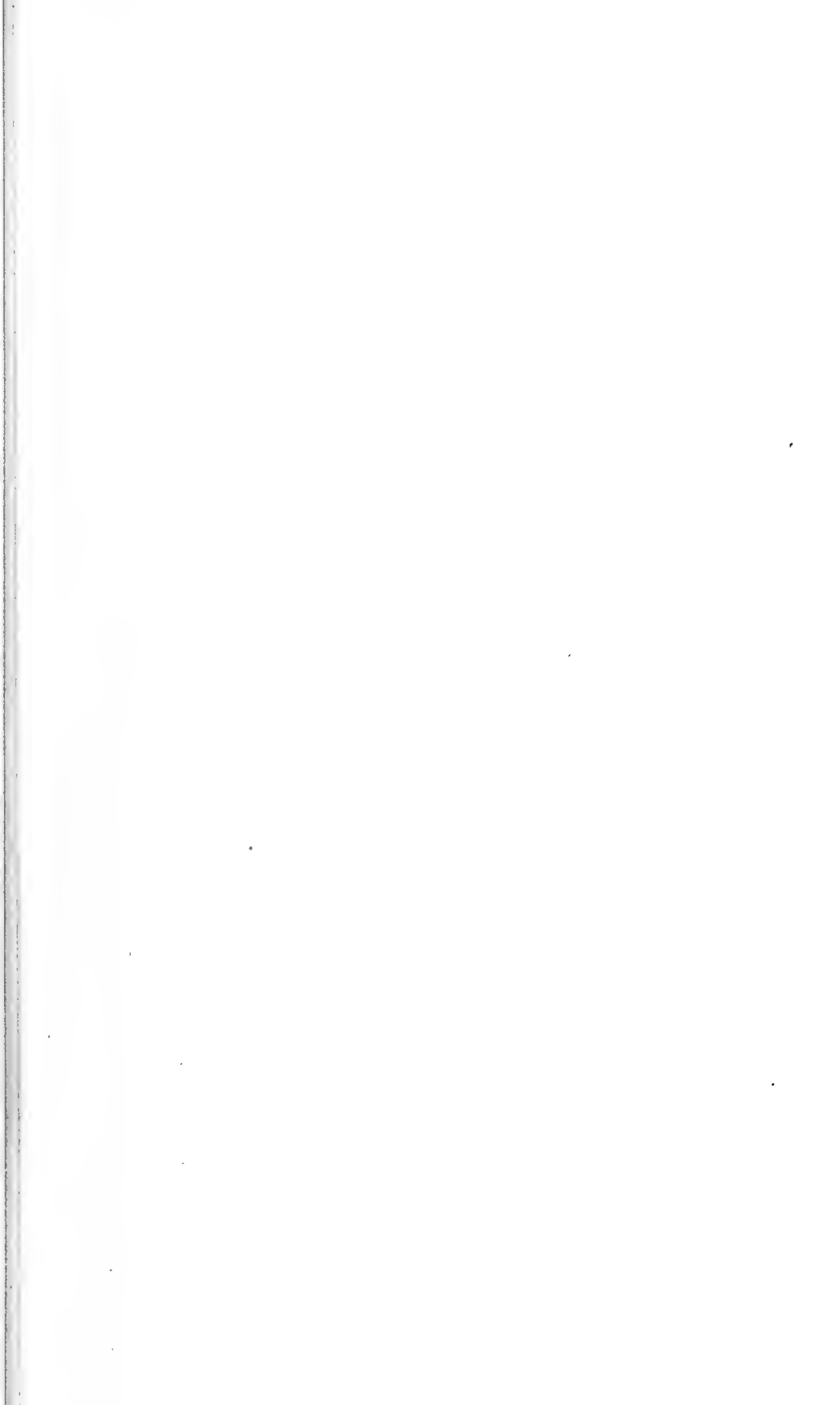
39. **B. robusta**, F. Muell. *Fragm.* iv. 72. A straggling shrub of 3 to 6 ft. Leaves linear or oblong, semiterete or concave, thick, very obtuse, mostly 2 to 4 lines long. Flowers solitary on a pedicel of 2 to 4 lines, articulate with 2 deciduous bracteoles about the middle, or rarely 2 or 3 together on a short common peduncle. Calyx-tube nearly 2 lines long, turbinate, smooth or obscurely angled, with short broad rather thick lobes. Petals not large. Stamens 10 to 20, none opposite the centre of the petals; filaments tapering at the end below the thick connective; anthers obcordate or almost didymous, the cells opening in rather large oblong terminal pores. Ovary 3-celled (or rarely 2-celled?) with 6 to 8 ovules in each cell round a small peltate placenta; style deeply immersed.—*Babingtonia robusta*, F. Muell. *Fragm.* iv. 74.

W. Australia. Sandy plains, Murchison river, *Oldfield*, *Drummond*, 6th Coll. n. 61.

40. **B. ovalifolia**, F. Muell. *Fragm.* iv. 72. Erect, attaining about 3 ft., with rather short virgate branches. Leaves erect or spreading, ovate, oblong or broadly linear, concave, thick, obtuse, $1\frac{1}{2}$ to 3 lines long. Flowers large for the genus, solitary on pedicels of 2 to 3 lines, articulate about or above the middle, with 2 linear or oblong concave deciduous bracteoles. Calyx-tube very broadly turbinate or hemispherical, about 2 lines diameter, more or less rugose; lobes short, broad, very obtuse, thick in the centre with broad scarious margins. Petals $2\frac{1}{2}$ to 3 lines diameter. Stamens 15 to 20 or even more, those opposite the centre of the petals often wanting; filaments filiform or slightly flattened, the inflated summit continuous with the thickened connective; anthers broadly clavate, the cells scarcely distinct, opening in terminal pores. Ovary convex, 3-celled, with 8 to 10 or sometimes more ovules in each cell round a small peltate placenta; style immersed to half the depth of the ovary. Capsule very convex.—*Harmogia ovalifolia*, F. Muell. *Fragm.* ii. 32; *Babingtonia ovalifolia*, F. Muell. *Fragm.* iv. 74.

W. Australia, *Drummond*, 5th Coll. n. 124; E. Mount Barren, *Marwell*. *Drummond's* specimens have longer leaves and larger flowers than the single one of *Maxwell's*.

41. **B. subcuneata**, F. Muell. *Fragm.* iv. 73. Erect, attaining 4 to 6 ft., with virgate branches. Leaves erect or slightly spreading, broadly obovate-cuneate, concave or folded, obtuse or the midrib slightly produced, rather thick, mostly $1\frac{1}{2}$ to 2 lines long. Flowers solitary on short thick pedicels, with a pair of very deciduous bracteoles below the middle. Calyx-tube turbinate-campanulate or hemispherical, rather thick; lobes short and broad, thick, with more or less scarious margins. Petals about $1\frac{1}{2}$ lines



diameter. Stamens about 20, none opposite the centre of the petals; filaments inflated at the summit and continuous with the thickened connective; anthers broadly obcordate, the cells opening in terminal pores. Ovary very convex, 3-celled, with several ovules in each cell; style shortly immersed.—*Babingtonia subcuneata*, F. Muell. *Fragm.* iv. 74.

W. Australia. Sandy plains, Murchison river, *Oldfield*.

42. **B. grandiflora**, *Benth.* Branches elongated, with numerous small branchlets. Leaves linear, semiterete or triquetrous, obtuse or scarcely mucronate, clustered or decussate on the smaller branches, 2 to 4 lines long, the floral ones distant. Flowers large, solitary, on pedicels of 2 to 4 lines, articulate above the middle with a pair of linear bracteoles. Calyx-tube very open, above 2 lines diameter, truncate, with 5 prominent angles or short teeth. Petals nearly 3 lines diameter. Stamens 15 to 20; filaments thick and dilated, forming an uninterrupted ring, but quite free from each other; anthers large and thick, ovoid or oblong, truncate at the top, the connective forming a short protuberance at the base; the cells quite united, opening in small terminal pores. Ovary flat, 3-celled, with numerous ovules in each cell; style shortly immersed.

W. Australia. Between Moofe and Murchison rivers, *Drummond*, 6th Coll. n. 60.

(*B. spinosa*, Sieb. in Spreng. *Syst. Cur. Post.* 149, is unknown to me, and probably no *Bækea*.)

14. **ASTARTEA**, DC.

Calyx-tube turbinate or hemispherical, adnate to the ovary at the base, the free disk-bearing part broad and open; lobes 5, imbricate, continuous with the tube, scarious on the edges, persistent. Petals 5, broadly obovate or orbicular, spreading. Stamens usually above 20 in a single row, more or less united at the base into 5 clusters opposite the calyx-lobes or into a ring scarcely interrupted opposite the petals; anther-cells distinct, opening in longitudinal or transverse slits. Ovary 3-celled, with several ovules in each cell in 2 rows or in a ring round a more or less peltate placenta; style filiform, inserted in a slight or shortly tubular depression in the centre of the ovary; stigma capitate. Capsule almost entirely inferior, opening at the top loculicidally in 3 valves. Seeds more or less angular, with a thin testa; embryo probably as in *Bækea*, but not seen perfect.—Heath-like glabrous shrubs. Leaves small, opposite, narrow, entire. Flowers small, white or pink, solitary in the axils, nearly sessile, or on a peduncle or pedicel articulate near the base, with 2 small bracteoles at the articulation.

The genus is entirely Australian, only differing from the section *Schidiomyrtus* of *Bækea* in the stamens more or less united at the base opposite the calyx-lobes, not opposite the petals as in *Melaleuca* and its allies.

Flowers distinctly pedicellate. Anthers opening longitudinally.

Flowers rather large. Filaments dilated, forming a nearly complete ring at the base

1. *A. ambigua*.

Flowers small. Filaments scarcely dilated, united at the base into 5 distinct clusters

2. *A. fascicularis*.

Flowers nearly sessile. Anthers opening in transverse slits

3. *A. intratropica*.

1. **A. ambigua**, F. Muell. *Fragm.* ii. 32. An erect or spreading shrub of 3 or 4 ft. Leaves linear, linear-cuneate or here and there almost lanceo-

late, rigid, concave, obtuse, or with a small often recurved point, 2 to 3 or rarely 4 lines long. Flowers large for the genus, on pedicels 2 to 3 lines long, articulate with 2 minute bracteoles near the base. Calyx-tube broad, almost hemispherical, about 2 lines diameter; lobes semiorbicular. Petals 2 lines diameter. Stamens about 20; filaments of unequal length but all short, dilated, more or less united in a ring either complete or broken opposite the centre of the petals; anther-cells parallel, opening longitudinally in front of the summit of the filament; connective-gland globular. Ovary nearly flat, with 6 to 8 ovules in each cell; style in a very slight central depression.

W. Australia. E. Mount Barren, Mount Bland, and Phillips Ranges, *Maxwell*.

2. **A. fascicularis**, *DC. Prod.* iii. 210. An erect heath-like shrub attaining 8 to 10 ft., rarely low and diffuse. Leaves linear, semiterete or triquetrous, obtuse or mucronulate, usually 2 or 3 lines long and rather slender, but varying from under 2 lines to above 4 lines, thick or slender and almost filiform, often densely clustered in the axils but sometimes distant. Flowers small, on pedicels of 1 to 2 or rarely 3 lines, articulate with a pair of small bracteoles above the middle. Calyx-tube broadly turbinate-campanulate, about 1 line diameter, or rather more when in fruit; lobes scarious on the margin, the centre thickened, and sometimes produced into a conical protuberance or point. Petals usually about $1\frac{1}{2}$ lines diameter, but variable in size. Stamens in 5 distinct clusters, usually of 5 or 6 each, but sometimes only 3 or 4, or 7 or 8 in each cluster; anthers small, didymous, the cells parallel, opening in broad longitudinal slits. Ovary flat or slightly convex, with 6 to 10 ovules in each cell; style in a short central tubular depression.—*Melaleuca fascicularis*, Labill. Pl. Nov. Holl. ii. 29. t. 170; *Leptospermum dubium*, Spreng. Syst. ii. 492; *Bæckeia affinis*, Endl. in Hæg. Enum. 51, according to Schau. *Astartea leptophylla*, *A. fascicularis*, *A. laricifolia*, *A. scoparia*, *A. aspera*, *A. glomerulosa*, *A. corniculata*, and *A. Endlicheriana*, Schau. in Pl. Preiss. i. 113 to 115.

W. Australia. King George's Sound, Lucky Bay, *R. Brown*, *Labillardière*. Common from the S. coast to Swan and Murchison rivers, *Fraser* and others; *Preiss*, n. 150, 156, 158, 159, 162, 163, 165, 361; *Drummond*, 1st. Coll.; 2nd Coll. n. 60, 70; 3rd Coll. n. 35; 4th Coll. n. 52; 5th Coll. n. 125, 128.

The species is certainly variable as to the size of the flowers, the thick or fine leaves, the greater or less prominence of the appendage or thickening of the calyx-lobes, the number of stamens, etc., but I have been quite unable to sort the very numerous specimens before me into distinct varieties. Some from King George's Sound, *Harvey*, have remarkably small flowers, the petals under 1 line diameter; other small-flowered specimens have the dorsal point of the calyx-lobes much elongated, but do not otherwise differ. In some of *Drummond's* and *Maxwell's* specimens from the districts east of King George's Sound the flowers are altogether much larger with the petals nearly 2 lines diameter. *Labillardière's* figure represents a coarse form, with the leaves less clustered than usual. *Drummond's* 2nd Coll. n. 60, are like it, but more etiolated.

3. **A. intratropica**, *F. Muell. Fragm.* i. 83. A shrub of several ft. with erect virgate branches. Leaves linear, triquetrous or semiterete, obtuse, rather thick, mostly 3 to 4 lines long, narrowed at the base, not clustered. Flowers almost sessile, with 2 narrow very deciduous bracteoles. Calyx-tube turbinate-campanulate, about $1\frac{1}{2}$ lines diameter, glandular-rugose; lobes broad, very obtuse, thickened in the centre, but without any appendage.





Petals above 1 line diameter. Stamens in 5 distinct clusters of 6 to 8 each; anther-cells distinct, globular, opening in transverse slits, the connective gland nearly as large as each cell. Ovary with numerous ovules in each cell.

N. Australia. Ravines of the sandstone table-land at the head of the Roper and Limmen Bight rivers, *F. Mueller*.

15. **HYPOCALYMMA**, Endl.

Calyx-tube broadly turbinate or almost flat, adnate to the ovary at the base; lobes 5, broad and obtuse, more or less scarious, shorter than the petals. Petals 5, broadly obovate or orbicular, spreading, often persistent. Stamens numerous, not exceeding the petals, very shortly united in a single ring; filaments filiform, in 1 or more rows, persistent; anthers ovate or oblong, the cells parallel, opening longitudinally. Ovary in the bottom of the calyx, inferior half-inferior or wholly superior except the broad base, with or without a central depression round the style, 2- or 3-celled, with 1, 2 or rarely more ovules in each cell, laterally attached or pendulous; style filiform, with a small or capitate stigma. Capsule more or less inferior or enclosed in the calyx-tube, opening loculicidally at the top or in the whole free portion. Seeds solitary or few in each cell, ovoid-oblong, with an oblong lateral hilum; testa usually crustaceous, with a thin inner membrane round the embryo (or wholly membranous?). Embryo, where known, straight, filling the seed, quite entire, with a small sometimes slightly incurved papilla at the smallest upper end.—Shrubs, either glabrous or with pubescent branches. Leaves opposite, usually larger than in *Bækea*, entire or with crisped edges. Flowers axillary, in pairs or rarely 3 or 4 together in each axil, sessile or shortly pedunculate, with 3 scarious bracts or bracteoles under each flower, 1 at the top of the common peduncle and 2 under the calyx.

The genus is limited to Western Australia. It connects, in some measure, *Bækea* and its allies with *Leptospermum*, but differs from both in the staminal arrangement, and, as far as known, in the embryo. The *H. strictum* has sometimes almost the aspect of *Kunzea pauciflora*, which moreover has very frequently many of the leaves opposite, but is readily distinguished by the 5-celled ovary and capsule.

SECTION I. *Eucalymma*.—Ovary 2- or 3-celled, with 2 or 3 ovules in each cell, the style continuous with the prominent ridges, without any central depression. Flowers in pairs, sessile or on a very short common peduncle.

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| Branches pubescent. Leaves oblong-cuneate, very obtuse. Flowers yellow. Ovary 3-celled, slightly prominent | 1. <i>H. xanthopetalum</i> . |
| Glabrous. Ovary 2-celled. Flowers not yellow. Leaves linear-lanceolate, rigid, acute. Ovary scarcely prominent | 2. <i>H. robustum</i> . |
| Leaves triquetrous, $1\frac{1}{2}$ to $2\frac{1}{2}$ in. long. Capsule very convex | 3. <i>H. longifolium</i> . |
| Leaves terete or sulcate, under $\frac{3}{4}$ in. long. Ovary very prominent, free, except the broad base | 4. <i>H. strictum</i> . |

SECTION II. *Astrocalymma*.—Ovary 3-celled, with 1 ovule in each cell, prominently 3-angled, the style inserted in a central depression. Flowers closely sessile, in pairs.

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|---|------------------------------|
| Leaves broadly oblong, very obtuse. (Flowers white or pink?) | 5. <i>H. tetrapterum</i> . |
| Leaves linear-oblong, obtuse or rather acute. Flowers yellowish | 6. <i>H. linifolium</i> . |
| Leaves semiterete or triquetrous, 3 or 4 times as long as the small flowers | 7. <i>H. angustifolium</i> . |
| Leaves semiterete or triquetrous, not exceeding the large flowers. | 8. <i>H. ericifolium</i> . |

SECTION III. **Cardiomyrtus**.—Ovary 3-celled, with 2 or more ovules in each cell, without prominent ridges, the style inserted in a central depression. Flowers pedunculate.

Ovules 2 in each cell. Leaves orbicular-cordate.

Leaves with crisped or denticulate recurved margins. Ovary slightly convex. 9. *H. cordifolium*.

Leaves flat and entire. Ovary very prominent, free, except the broad base 10. *H. boroniaceum*.

Ovules 6 to 12 in each cell.

Branches pubescent. Leaves cordate, ovate 11. *H. Phillipsii*.

Glabrous. Leaves elliptical, rounded or narrowed at the base . 12. *H. hypericifolium*.

SECTION I. **EUCALYMMA**, Schau.—Ovary 2- or 3-celled, with 2 or 3 ovules in each cell, the style continuous with the prominent raised angles or ridges of the ovary, without any central depression. Flowers in pairs, sessile or on a very short common peduncle.

The want of the central depression of the ovary round the style is exceptional in the first three subtribes of *Leptospermeæ*.

1. **H. xanthopetalum**, *F. Muell. Fragm.* ii. 29. Erect or diffuse, not much branched, attaining 1 or 2 ft., the branches pubescent. Leaves from narrow-oblong to broadly oblong-cuneate or almost obovate, obtuse, minutely denticulate-ciliate, $\frac{1}{2}$ to $\frac{3}{4}$ in. long, narrowed at the base, but sessile or half stem-clasping. Flowers yellowish, in closely sessile pairs. Bracts orbicular, scarious, covering the calyx-tube. Calyx-tube nearly 2 lines diameter, the lobes half as long as the petals, entire or denticulate-ciliate. Petals persistent, about $1\frac{1}{2}$ lines diameter. Stamens numerous, the filaments almost 2-seriate. Ovary only slightly prominent at the top, with 3 raised angles continuous with the style without any central depression, 3-celled, with 2 ovules in each cell, but 2 of the cells often very small, with semiabortive ovules.—*H. cuneatum*, Turcz. in Bull. Mosc. 1862, ii. 325.

W. Australia. Murchison river and adjoining districts, *Drummond*, 6th Coll. n. 67, *Oldfield*.

H. ciliatum, Turcz. in Bull. Mosc. 1862, ii. 325, is a slight variety with narrower leaves.

2. **H. robustum**, *Endl. in Hueg. Enum.* 50 (under *Leptospermum*). An elegant shrub, of 1 to 2 or 3 ft., with erect, rigid, virgate branches, quite glabrous. Leaves linear or linear-lanceolate, spreading, rigid, acute, $\frac{1}{2}$ to 1 in. long, with a thick broad midrib, but otherwise nearly flat. Flowers peach-coloured, sessile in pairs or very rarely 3 or 4 together, on a very short, thick, common peduncle. Bracts small, lanceolate, concave. Calyx-tube rugose, $1\frac{1}{2}$ to 2 lines diameter; lobes orbicular, scarious, about 1 line diameter. Petals twice as long as the calyx-lobes. Stamens 30 to 40, nearly as long as the petals. Ovary flat-topped, with 2 prominent ridges continuous with the style, without any central depression, 2-celled, with 3 ovules in each cell.—*Lindl. Bot. Reg.* 1843, t. 8; *Schau. in Pl. Preiss.* i. 110.

W. Australia. Swan River, *Huegel*, *Drummond*, 1st Coll. n. 141, *Harvey*, *Oldfield*, *Preiss.* n. 342.

3. **H. longifolium**, *F. Muell. Fragm.* ii. 28. Very near *H. strictum*, and perhaps a variety. Branches rigid, virgate, glabrous. Leaves linear-

triquetrous, rigid, tapering into a slightly recurved point, $1\frac{1}{2}$ to $2\frac{1}{2}$ in. long. Flowers sessile, in pairs, on an exceedingly short, thick, common peduncle. Fruiting-calyx very flat and broad, nearly 3 lines diameter, the lobes very short and broad. Petals not seen. Capsule very convex, 2-celled. Seeds not seen.

W. Australia. Murchison river, Oldfield.

4. **H. strictum**, Schau. in *Pl. Preiss.* i. 111. A bushy glabrous shrub, of 1 to 2 ft., with numerous, erect, virgate branches. Leaves erect or spreading, linear-terete or sulcate, either obtuse and all under $\frac{1}{2}$ in., or rather longer and more acute. Flowers 2 to 4 together, sessile on an exceedingly short, thick, common peduncle, much smaller than in *H. robustum*. Calyx-tube but little above 1 line diameter, the semiorbicular lobes about half as long. Petals rather above 1 line diameter. Stamens usually rather longer than the petals. Ovary very convex, almost free, except the broad base, with 2 prominent ridges continuous with the style, without any central depression, 2-celled, with 2 or 3 ovules in each cell.—*H. Cunninghamii* and *H. asperum*, Schau. l. c.

W. Australia. King George's Sound and adjoining districts, *R. Brown*, *A. Cunningham*, *Fraser*, and others, *Drummond*, 4th Coll. n. 53, *Preiss*, n. 331, 332, 334, 335.

Var. *pedunculatum*. Branches more slender and elongated. Leaves slender. Common peduncles 1 to $1\frac{1}{2}$ lines long.—*Drummond*, 3rd Coll. n. 34.

SECTION II. ASTROCALYMMA, Schau.—Ovary 3-celled, with 1 ovule in each cell, prominently 3-angled, but with a central depression in which the style is inserted. Flowers closely sessile, in pairs.

5. **H. tetrapterum**, Turcz. in *Bull. Mosc.* 1862, ii. 325. Apparently a tall shrub, with virgate, more or less 4-angled branches, and quite glabrous. Leaves closely sessile or half stem-clasping, broadly oblong-cuneate, obtuse, mostly about $\frac{1}{2}$ in. long or rather more. Flowers in closely sessile pairs, not so yellow when dry as in the allied species. Bracts broad, shorter than the calyx. Calyx-tube very open, about 2 lines diameter; lobes semiorbicular, half as long as the petals. Petals persistent, about $1\frac{1}{2}$ lines diameter. Stamens almost 2-seriate. Ovary free, except the broad base, prominently 3-angled, with a short depression round the style, 3-celled, with 1 ovule in each cell or rarely a second abortive one. Capsule exceeding the calyx-tube, but enclosed in the persistent petals. Seeds oblong-reniform, with a large lateral hilum; testa crustaceous; embryo apparently entire.

W. Australia. Between Moore and Murchison rivers, *Drummond*, 6th Coll. n. 68.

6. **H. linifolium**, Turcz. in *Bull. Mosc.* 1862, ii. 325. Stems slightly branched, virgate, 1 to 2 ft. high, quite glabrous. Leaves closely sessile, oblong-linear, thick and rigid, obtuse or mucronate-acute, 4 to 8 lines long. Flowers in closely sessile pairs, apparently yellowish. Bracts orbicular, shorter than the calyx. Calyx-tube very open, about $1\frac{1}{2}$ lines diameter; lobes broad, petal-like, fully half as long as the petals. Petals about $1\frac{1}{2}$ lines diameter. Stamens almost 1-seriate. Ovary prominent, broadly and shortly pyramidal, prominently 3-angled, with a central depression round the style, 3-celled, with 1 ovule in each cell.

W. Australia. Between Moore and Murchison rivers, *Drummond*, 6th Coll. n. 65.

7. **H. angustifolium**, *Endl. in Hueg. Enum.* 50 (under *Leptospermum*). An erect, bushy, glabrous shrub, from about 1 to 3 ft. high. Leaves narrow-linear, rigid, channelled above or semiterete, rarely rather broader and concave, obtuse or acute, $\frac{1}{2}$ to 1 in. long. Flowers white or pale pink, in sessile pairs, but often in the axil of one only of each pair of leaves. Bracts ovate-cordate, scarious, about 1 line long. Calyx-tube broad and flat, nearly 2 lines diameter, with a slightly contracted rim; lobes broad, from $\frac{1}{3}$ to $\frac{1}{2}$ as long as the petals. Petals about $1\frac{1}{2}$ lines diameter. Stamens about as long as the petals, in a single row. Ovary pyramidal at the top, with 3 prominent angles and a short tubular depression round the style, 3-celled, with 1 ovule or very rarely a second abortive one in each cell; stigma small. Seeds like those of *H. tetrapterum*, but the embryo not seen perfect.—*Schau. in Pl. Preiss. i.* 112; *H. suave*, *Lindl. Bot. Reg.* 1844, Misc. 27.

W. Australia. Swan River to the S. coast, *Huegel*; *Drummond*, 1st Coll. n. 137, 142; *Preiss. n.* 333, 336, 338, 339, 340, 341, and others.

Var. *densiflorum*. Leaves shorter, inflorescence more dense, almost spicate; flowers smaller; stamens shorter.—*H. scariosum*, *Schau. in Pl. Preiss. i.* 111.—King George's Sound, *Preiss. n.* 330, *Oldfield*. Some of *Drummond's* specimens, described as *H. suave*, closely connect this variety with the form originally described as *H. angustifolium*.

8. **H. ericifolium**, *Benth.* Glabrous, with erect virgate branches. Leaves linear or linear-clavate, thick, obtusely triquetrous or channelled above, 2 to 4 lines long. Flowers in sessile pairs, much larger than in the allied species, concealing the floral leaves when several together. Bracts broad, about as long as the calyx-tube. Calyx-tube very broad and flat, about 2 lines diameter, the lobes not above $\frac{1}{3}$ as long as the petals. Petals above 2 lines diameter. Ovary broadly pyramidal on the top, with 3 prominently raised angles, and a rather deep central depression round the style, 3-celled, with 1 ovule in each cell.

W. Australia. Champion Bay and Vasse River, *Oldfield*.

SECTION III. CARDIOMYRTUS, *Schau.*—Ovary 3-celled, with 2 or more ovules in each cell, without prominent angles or ridges, and with a central depression in which the style is inserted. Flowers pedicellate, solitary, clustered or 2 or more together on a common peduncle.

9. **H. cordifolium**, *Lehm.*; *Schau. in Pl. Preiss. i.* 112. A glabrous shrub, of 2 or 3 ft., with long, loose branches, more or less 4-angled, the angles sometimes dilated under the leaves into denticulate wings. Leaves closely sessile, very broadly orbicular-cordate or almost triangular, the margins recurved and more or less crisped or denticulate, all under $\frac{1}{4}$ in. diameter in some specimens, about $\frac{1}{2}$ in. in others. Pedicels slender, solitary or more frequently 2 or 3 together, on a short, slender, common peduncle, but the proportions of the peduncle to the pedicels very variable, the whole inflorescence rarely as long as the leaf. Bracts very small and narrow. Calyx-tube very flat and open, about 1 line diameter; lobes herbaceous, orbicular, as long as the tube. Petals about twice the calyx-lobes. Ovary slightly convex, with a central depression round the style, but without prominent ridges, 3-celled, with 2 ovules in each cell.

W. Australia. King George's Sound and to the eastward, *R. Brown*, *Preiss. n.* 154,

Milne, Harvey, Oldfield, Drummond, n. 41, 2nd Coll. n. 59, 3rd Coll. n. 55, 4th Coll. n. 54.

10. **H. boroniaceum**, F. Muell. Herb. Stems several, from a woody stock, simple or slightly branched, mostly about 1 ft. high, glabrous. Leaves closely sessile, orbicular-cordate, flat and quite entire, very obtuse, $\frac{1}{4}$ to $\frac{1}{2}$ in. diameter. Pedicels slender, usually several together in an axillary cluster or on a very short common peduncle. Bracts very small, concave and coloured, at the base of the pedicels; bracteoles under the calyx sometimes rather larger. Calyx-tube broad and flat, about 1 line diameter; lobes richly coloured, $1\frac{1}{2}$ lines long or more. Petals of a rich red when dry, 3 to 4 lines long. Stamens exceedingly numerous, in more than one row. Ovary obovoid, very much raised, free except the broad base, without raised angles, but with a central depression round the style, 3-celled with 3 collateral ovules in each cell.

W. Australia, Drummond, 5th Coll. n. 119, also in Herb. F. Muell. from Dutton. With the exception of the colour of the flower, the specimens remind one of the European *Hypericum nummularifolium*.

11. **H. Phillipsii**, Harv. in Nat. Hist. Rev. v. 296. t. 22. Branches scarcely angular, softly pubescent. Leaves closely sessile, cordate-ovate, very obtuse, $\frac{3}{4}$ to above 1 in. long, glabrous. Flowers large, white, solitary or clustered in the axils, the pedicels rather thick, 1 to 2 lines long, with a small bract at the base, and larger ovate deciduous bracteoles under the calyx. Calyx-tube broad and flat, nearly 2 lines diameter; lobes ovate-orbicular, $1\frac{1}{2}$ lines long. Petals 4 to 5 lines. Stamens very numerous, in more than 1 row. Ovary much raised, obtusely 3-lobed, with a small central depression round the style, 3-celled, with 10 to 12 ovules in each cell.

W. Australia. Raised in the Botanic Garden of Dublin from seeds received from the neighbourhood of King George's Sound.

12. **H. hypericifolium**, Benth. Branches erect, elongated, slightly 4-angled, glabrous. Leaves elliptical or almost ovate, obtuse or nearly so, narrowed or rounded at the base, mostly $\frac{3}{4}$ to 1 in. long. Flowers white, not so large as in *H. Phillipsii*, usually clustered in the axils, the pedicels very short but slender, with a small bract at the base, and 2 rather larger ovate concave bracteoles under the calyx. Calyx-tube very flat, about $1\frac{1}{2}$ lines diameter; lobes ovate-orbicular, about $1\frac{1}{2}$ lines long. Petals twice as large. Stamens numerous, in more than 1 row. Ovary half-superior, broad, obtusely 3-lobed, with a central depression round the style, 3-celled, with 6 to 8 ovules in each cell.

W. Australia, Drummond, 5th Coll. n. 118.

16. BALAUSTION, Hook.

(Cheynia, J. Drumm.)

Calyx-tube urceolate, adnate to the ovary at the base; lobes 5, broad and obtuse, continuous with the tube. Petals 5, orbicular, spreading. Stamens numerous, free, not exceeding the petals, inserted in a single row round the prominent annular disk; anther-cells versatile; the cells parallel, opening

longitudinally. Ovary in the bottom of the calyx, wholly inferior, flat-topped with a central depression round the style, 3-celled, with several ovules in each cell, imbricate in 2 rows on a peltate placenta; style filiform, with a slightly dilated capitate stigma. Capsule opening loculicidally, but not near ripe in our specimens.—Shrub. Leaves opposite, entire. Flowers large, axillary, pedicellate with 2 bracteoles under the calyx.

The genus is limited to the single Australian species.

1. **B. pulcherrimum**, *Hook. Ic. Pl. t.* 852. A low glabrous shrub, with a short thick trunk and numerous decumbent or prostrate stems, extending to about 1 ft. Leaves petiolate, linear-concave and keeled or triquetrous, rigid, acute or mucronate, mostly under $\frac{1}{2}$ in. long. Flowers of a rich red, solitary in the axils below the ends of the branches, on pedicels of 1 to 3 lines. Bracteoles small, ovate. Calyx-tube nearly $\frac{1}{2}$ in. long; lobes about 1 to $1\frac{1}{2}$ lines, coloured like the tube. Petals about 5 lines diameter, with a very short broad claw. Stamens about 30, the filaments somewhat dilated, with a callous protuberance at the base inside. Style long.—*Cheynia pulchella*, J. Drumn. in *Hook. Kew Journ.* vii. 56.

W. Australia. Northern districts, *Drummond*, 5th Coll. *Suppl. n.* 26.

SUBTRIBE II. EULEPTOSPERMEÆ.—Leaves scattered or rarely opposite, small or narrow and coriaceous, 1- or more nerved, rarely penniveined. Flowers solitary in the axils of the leaves or bracts, closely sessile except in a very few species. Stamens indefinite, in one or more rows, free or united in bundles opposite the petals, or very rarely definite. Anthers versatile, with distinct parallel cells. Ovules in 2 or more rows in each cell of the ovary. Embryo straight or slightly incurved, the cotyledons usually longer than the radicle.

17. AGONIS, DC.

(*Billiottia*, DC.)

Calyx-tube turbinate or campanulate, adnate to the ovary at the base, the free part broad; lobes 5, ovate, usually scarious, imbricate or open. Petals 5, orbicular, spreading, exceeding the calyx-lobes. Stamens free, not exceeding the petals, either 10 regularly opposite the petals and calyx-lobes, or 20 or more without any opposite the centre of the petals; filaments filiform; anthers versatile, the cells parallel, opening longitudinally; connective with a small globular gland. Ovary inferior, 3-celled, with 2 or 4 ovules in each cell erect from a small nearly basal placenta; style filiform, inserted in a deeply tubular depression in the centre of the ovary, being attached almost to the base of the carpels; stigma capitate or peltate. Capsule opening at the top loculicidally in 3 valves, shorter than the calyx-tube. Seeds oblong or cuneate; testa thin; embryo straight; cotyledons plano-convex, much longer than the radicle.—Shrubs or small trees. Leaves alternate, often crowded on the smaller branchlets, either small or long and narrow, entire. Flowers rather small, closely sessile, in globular axillary or terminal heads, usually surrounded by imbricate scale-like bracts, with 2 smaller bracteoles under each flower, the white persistent petals usually very conspicuous.

The genus is limited to West Australia. Formerly considered as a section of *Lepto-*

spermum on account of its alternate leaves and stamens not exceeding the petals; it is much nearer allied to *Melaleuca* in inflorescence and in the ovary and seeds, whilst the arrangement of the stamens shows a connection with *Bæckeia* and its allies. The seeds have been examined in three species only.

SECTION I. **Taxandria**.—Stamens 10, regularly opposite the calyx-lobes and petals. Ovules 2 in each cell.

Leaves spathulate, obovate or oblong-cuneate.

Leaves mostly obovate, thick, nerveless, rarely above $\frac{1}{2}$ in. long.

Bracts not exceeding the calyx-tube 1. *A. spathulata*.

Leaves oblong-cuneate, mucronate-acute, 1- or 3-nerved, $\frac{1}{2}$ to 1 in. long. Bracts covering the calyx-tube 2. *A. floribunda*.

Leaves obovate-oblong, obtuse, rigid, 3-nerved, bordered with silky hairs, $\frac{1}{2}$ to 1 in. long. Bracts not exceeding the calyx-tube 3. *A. marginata*.

Leaves linear or linear-lanceolate.

Leaves $\frac{1}{2}$ to 1 in. long, obtuse or acute, not pungent. Bracts and calyx-lobes obtuse 4. *A. linearifolia*.

Leaves $\frac{1}{2}$ to $\frac{1}{2}$ in., mucronate-acute and mostly pungent. Bracts and calyx-lobes more or less acute 5. *A. juniperina*.

Leaves densely clustered, $\frac{1}{2}$ in. or under, obtuse or rarely acute. Bracts and calyx-lobes obtuse 6. *A. parviceps*.

SECTION II. **Ataxandria**.—Stamens 20 to 30 (except in *A. grandiflora*), but none opposite the centres of the petals. Ovules 4 to 6 in each cell.

Leaves linear-lanceolate to oblong-cuneate, 1 to 6 in. long. Bracts and calyx-lobes obtuse 7. *A. flexuosa*.

Leaves obovate or oblong-cuneate, undulate, mostly $\frac{1}{2}$ in. long. Bracts acuminate. Calyx-lobes acute 8. *A. undulata*.

Leaves ovate, almost cordate, about $\frac{1}{2}$ in. long. Bracts and calyx-lobes obtuse 9. *A. theæformis*.

Leaves linear. Flowers large, solitary, or 2 to 4 in the head. Bracts and calyx-lobes large and scarious 10. *A. grandiflora*.

SECTION I. **TAXANDRIA**.—Stamens 10, regularly opposite the calyx-lobes and petals, as in the first two sections of *Bæckeia*. Ovules 2 in each cell.

1. ***A. spathulata***, Schau. in *Pl. Preiss.* i. 117. A densely-tufted, bushy, or diffuse shrub of 1 to 2 ft., glabrous, or with a few long soft hairs about the upper leaves and inflorescence. Leaves obovate, spathulate, or almost orbicular, narrowed into a distinct petiole, very obtuse, thick, concave, and almost nerveless, mostly $1\frac{1}{2}$ to 3 lines long. Flowers snow-white, in and almost sessile terminal or axillary heads of 12 to 20. Outer bracts broadly orbicular, granular-tuberculate, covering the calyx-tube, inner ones obovate; bracteoles narrow, concave. Calyx-tube turbinate, about 1 line long; lobes about half as long as the tube, scarious and ciliate. Petal-claws as long as the calyx-lobes; lamina orbicular, 1 line diameter. Stamens 10, regularly opposite the calyx-lobes and petals; filaments somewhat dilated, especially those opposite the petals. Ovules 2 in each cell of the ovary.

W. Australia. Lucky Bay, *R. Brown*; Kalgan river, *Oldfield*; barren rocky wastes at the foot of the Konkoberup hills, *Preiss*, n. 324; also *Drummond*, 5th Coll. n. 131.

Var. *angustifolia*. Leaves longer, narrower, and less obtuse, sometimes almost linear-cuneate and $\frac{1}{2}$ in. long. Flowers rather larger, with shorter and broader claws to the petals.—E. Mount Barren, *Maxwell*.

2. ***A. floribunda***, Turcz. in *Bull. Mosc.* 1849, ii. 20. Branches rigid;
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flexuose, apparently spreading, the young shoots loosely silky-hairy. Leaves crowded on the smaller branchlets, almost whorled under the flower-heads, oblong-cuneate, acute or mucronate, undulate, much narrowed towards the base, 1- or 3-nerved, from about $\frac{1}{4}$ to above $\frac{1}{2}$ in. long. Flower-heads terminal, or below the ends of the branches after the growth of the axis, very dense, but few-flowered. Imbricate bracts broad, rigid, completely enveloping the calyx, surrounded by a whorl of floral leaves. Calyx-tube pubescent; lobes ciliate. Petal-claws coloured, as long as the calyx-lobes; lamina orbicular, very white. Stamens 10, regularly opposite the calyx-lobes and petals. Ovules 2 in each cell of the ovary.

W. Australia. *Drummond, 4th Coll. n. 56.*—The species is allied to *A. spathulata*, differing chiefly in the narrower leaves and in the bracts. No. 55, 4th Coll. of Drummond, may be the same species in very young bud.

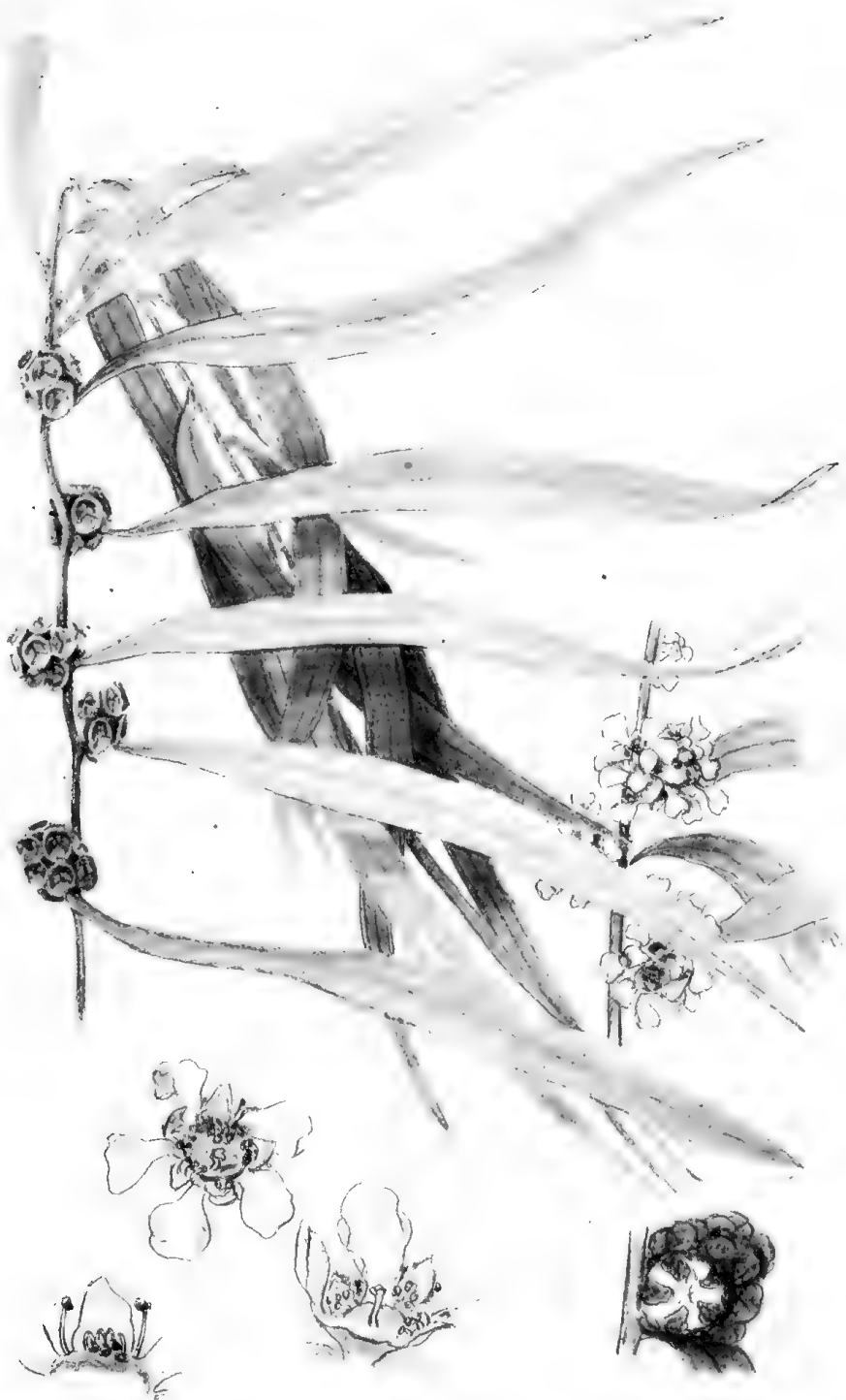
3. ***A. marginata***, *Schau. in Pl. Preiss. i. 117.* A tall shrub, the branches and young shoots clothed with soft silky hairs. Leaves obovate-oblong, narrowed into a short petiole, obtuse, or minutely mucronate, $\frac{1}{2}$ to 1 in. long, 3- or rarely 5-nerved, bordered by a rim of dense appressed hairs, which at length wear off. Flower-heads terminal or axillary, of about 12 to 20 flowers. Imbricate bracts broadly orbicular, the inner ones obovate, concave. Calyx-tube rather above 1 line long; lobes about half as long, softly ciliate, and silky-hairy. Petals snow-white, orbicular, above 1 line diameter, the claw shorter than the calyx-lobes, or scarcely any. Stamens 10, opposite the petals and calyx-lobes. Ovules 2 in each cell of the ovary.—*Leptospermum marginatum*, Labill. Pl. Nov. Holl. ii. 10. t. 148; DC. Prod. iii. 226; *Billiottia marginata*, G. Don, Gen. Syst. ii. 827; *Fabricia stricta*, Lodd. Bot. Cab. t. 1219.

W. Australia. King George's Sound, *R. Brown, Labillardière*, and adjoining districts, *A. Cunningham*; *Preiss, n. 141*; *Baxter*, and others.

4. ***A. linearifolia***, *Schau. in Pl. Preiss. i. 118.* A tall shrub, attaining 12 ft. or more in some situations, the young shoots loosely and softly hairy, otherwise glabrous. Leaves linear, linear-lanceolate, or somewhat cuneate, mostly acute and narrowed at the base, nerveless, or 1- or 3-nerved, $\frac{1}{2}$ to 1 in. long. Flower-heads small, all axillary. Calyx-lobes short, ovate, obtuse, pubescent, ciliate. Petals with very short broad claws. Stamens 10, regularly opposite the calyx-lobes and petals, the filaments broad at the base. Ovules 2 in each cell of the ovary.—*Leptospermum linearifolium*, DC. Prod. iii. 227; Mem. Myrt. t. 12; *Billiottia linearifolia*, G. Don, Gen. Syst. ii. 827; *Agonis conspicua* and *A. angustifolia*, *Schau. in Pl. Preiss. i. 118.*

W. Australia. King George's Sound and Lucky Bay, *R. Brown*, and thence to Swan River, apparently common, *A. Cunningham*, and others; *Drummond, 1st Coll. n. 156*; 3rd Coll. n. 42; 4th Coll. n. 57; *Preiss, n. 142, 145*, and in some sets, n. 151, which in others is *Leptospermum firmum*. Some specimens from Cape Le Grand, *Maxwell*, and from *Drummond, 5th Coll. n. 143*, and 5th Coll. n. 132, have remarkably narrow leaves. Others from Capelrice, *Oldfield*, have very short leaves, almost connecting the species with the long-leaved forms of *A. spathulata*. *Preiss's n. 149 and 150 (A. angustifolia and A. conspicua)* have large flowers.

5. ***A. juniperina***, *Schau. in Pl. Preiss. i. 118.* A tall shrub, or sometimes a tree of 40 ft. or even more, with rigid branches more or less



Andropogon scoparius Michx.

pubescent or hirsute when young. Leaves linear-lanceolate, clustered in the axils or on short branchlets, concave, rigid, mucronate-acute or almost pungent, $\frac{1}{4}$ to nearly $\frac{1}{2}$ in. long. Flower-heads globular, terminating short lateral branchlets. Bracts rather small, very concave, mucronate or acute. Calyx-tube softly pubescent, about 1 line long; lobes much shorter, ovate-triangular, acute. Petals about 1 line diameter, on claws nearly as long as the calyx-lobes. Stamens 10, regularly opposite the calyx-lobes and petals. Ovules 2 in each cell of the ovary.

W. Australia. *Drummond, 2nd Coll. n. 79, 4th Coll. n. 58*; barren gravelly places near Cape Riche, *Preiss, n. 314*, Blackwood river, and by lagoons, Princess Royal Harbour, *Oldfield*; shores of Lake Leven, *Maxwell*.—The species is very closely allied to *A. parviceps*, and some specimens from Hay river, *Maxwell*, with the foliage and larger flowers of *A. juniperina*, have the calyx-lobes and bracts scarcely acute.

6. A. parviceps, Schau. in Pl. Preiss. i. 119. A much-branched bushy rigid shrub of from 2 to 3 ft. to twice that height. Leaves from linear-spathulate, and under 2 lines, to linear-lanceolate, and 3 lines long or rather more, densely clustered in the axils and on the smaller branchlets, rigid, concave, spreading or recurved, obtuse or slightly mucronate. Flowers small, in small heads in the cluster of leaves, or terminating short branchlets. Bracts obtuse, not exceeding the calyx-tube. Calyx-tube pubescent, rarely above $\frac{3}{4}$ line long; lobes shorter than the tube, ovate, obtuse. Stamens usually 10, regularly opposite the calyx-lobes and petals, those opposite the calyx-lobes smaller and perhaps sometimes wanting; filaments short. Ovules 2 in each cell of the ovary.

W. Australia. Moist boggy ground, King George's Sound, *R. Brown*, and adjoining districts, *A. Cunningham* and others; *Drummond, 2nd Coll. n. 78*; *Preiss, n. 160, 161*; Vasse river, *Oldfield*.

SECTION II. ATAXANDRIA.—Stamens 20 to 30, in a single series, but usually (except in *A. grandiflora*) interrupted opposite the centre of each petal, as in the last four sections of *Backea*. Ovules 4 to 6 in each cell of the ovary.

7. A. flexuosa, Schau. in Pl. Preiss. i. 116. A tall shrub or tree attaining 40 ft., the young shoots often silky-pubescent, at length glabrous. Leaves lanceolate or linear-lanceolate, acute, narrowed at both ends, 3-nerved, 2 to 6 in. long. Flower-heads all axillary. Bracts not numerous, broad, very obtuse, shorter than the calyx. Calyx softly pubescent, the tube 1 to $1\frac{1}{2}$ lines long, the lobes much shorter, scarious, and fringed or ciliate at the edges. Petals obovate, fully 2 lines long. Stamens usually 20, 4 opposite each calyx-lobe, none opposite the petals. Ovules 6 in each cell of the ovary.—*Metrosideros flexuosa*, Willd. Enum. Hort. Berol. 514; *Leptospermum flexuosum*, Spreng. Nov. Prov. according to DC. Prod. iii. 226; Colla, Hort. Ripul. App. t. 2; *Billiottia flexuosa*, G. Don, Gen. Syst. ii. 827; *Leptospermum resiniferum*, Bertol. Amœn. Ital. 29; *L. glomeratum*, Wendl. fil. in Flora, 1819, 678, as corrected in Wendl. Beitr. ii. 22.

W. Australia. King George's Sound, *R. Brown*, and thence to Swan River, *A. Cunningham*, *Fraser*, and others; *Drummond, n. 18, 54, and 2nd Coll. n. 77*; *Preiss, n. 136, 137, 138, 139, 140, 147*.

Var. latifolia, Schau. Branches stouter and more rigid; leaves shorter, broader, obtuse,

and rigid; flowers larger and more numerous in the head; calyx-tube nearly 2 lines; petals 4 lines long; stamens about 6 opposite each calyx-lobe.—King George's Sound, and to the eastward, *Preiss*, n. 144; *Drummond*, 5th Coll. n. 133; *Maxwell*.

8. **A. undulata**, *Benth.* Branches rigid, almost spinescent, our specimens entirely glabrous. Leaves from obovate to oblong-cuneate, obtuse or mucronulate and often emarginate, much narrowed at the base, undulate, 1- or 3-nerved, rarely exceeding $\frac{1}{2}$ in. Flower-heads terminal or axillary, or sometimes below the ends of the branches, the axis growing out as in *Melaleuca*; flowers not numerous in the head. Bracts acuminate, pubescent, nearly as long as the calyx. Calyx silky, the tube about 1 line long; lobes rather shorter, acute. Petals obovate, not twice as long as the calyx-lobes. Stamens about 4 opposite each calyx-lobe, none opposite the petals. Ovules 4 in each cell of the ovary.

W. Australia, *Drummond*, n. 6.—Allied to *A. theæformis*, but differing in foliage and in the calyx-lobes.

9. **A. theæformis**, *Schau. in Pl. Preiss.* ii. 223. A tall shrub with rather slender branches, the young shoots loosely and softly hairy, becoming glabrous when full grown. Leaves ovate or broadly elliptical, acute or obtuse, cordate or truncate at the base, under $\frac{1}{2}$ in. long, and sometimes not above $\frac{1}{4}$ in., 1-nerved and penniveined, often undulate, with a recurved point. Flower-heads all axillary, of 6 to 12 flowers. Bracts fringed-ciliate. Calyx-tube broad; lobes broad, obtuse, with scarious edges. Petals white, but drying of a yellowish hue, 1 to $1\frac{1}{2}$ lines diameter. Stamens about 20, none opposite the centres of the petals. Ovules about 4 in each cell of the ovary, but only 1 appears to enlarge, the perfect seed has, however, not been seen.—*A. hypericifolia*, *Schau. in Pl. Preiss.* i. 117.

W. Australia. Moist sandy places and rocks, King George's Sound, *R. Brown*, and adjoining districts, *A. Cunningham*; *Baxter*; *Drummond*, 3rd Coll. n. 41; *Preiss*, n. 152, 153; *Oldfield*.

10. **A. grandiflora**, *Benth.* Glabrous, or the young shoots hairy. Leaves densely clustered, linear, concave, obtuse or mucronate, about $\frac{1}{2}$ in. long. Flowers large, solitary, or in heads of 2 to 4, sessile in the clusters of leaves. Bracts scarious, imbricate, covering the calyx. Calyx-tube $1\frac{1}{2}$ lines long, pubescent, with appressed hairs; lobes at least as long as the tube, ovate, scarious. Petals about 4 lines long, obovate, narrowed into a claw. Stamens 20 to 30, rather closer together opposite the calyx-lobes than opposite the petals, but forming a complete ring without any distinct vacancy opposite the centre of the petals; anthers large, with oblong parallel cells and a conspicuous connective-gland. Ovary entirely as in the rest of the section, with 4 to 6 erect ovules in each cell.

W. Australia. Near Hampden, *W. Clarke*.

18. LEPTOSPERMUM, Forst.

(*Fabricia*, *Gærtn.*; *Macklotia*, *Korth.*; *Homalospermum*, *Schau.*; *Pericalymma*, *Endl.*)

Calyx-tube broadly campanulate or rarely turbinate, adnate to the ovary at the base, free part broad; lobes 5, ovate, herbaceous or membranous, imbricate.





cate or open. Petals 5, orbicular, spreading, exceeding the calyx-lobes. Stamens numerous, free, not exceeding the petals, inserted on the margin of the disk in a single row; filaments filiform; anthers versatile, the cells parallel, opening longitudinally; connective with a small globular gland. Ovary inferior or half-superior, enclosed in the calyx-tube, usually 5- or more celled, rarely 3- or 4-celled, with either numerous ovules in each cell densely covering a peltate placenta and horizontal or recurved, or few and recurved in two rows; style filiform, inserted in a slight or deep depression in the centre of the ovary, often short, with a capitate or peltate stigma. Capsule opening at the top loculicidally, either protruding from the calyx-tube or rarely shorter. Seeds either linear-cuneate and wingless or more or less angular with transparent wings or cilia along the angles, but usually only few in each cell or a single one perfect, the others sterile often hard and always wingless.—Shrubs or rarely small trees, glabrous silky-pubescent or hoary. Leaves alternate, small, rigid, entire, nerveless or 1- or 3-nerved. Flowers usually white, sessile or rarely shortly pedicellate, solitary or 2 or 3 together at the ends of short branchlets or in the axils of the leaves. Bracts broad, scarious, 2 or 3 outer ones usually imbricate, but falling off from the very young bud, 2 inner ones or bracteoles opposite and close under the calyx often more persistent.

The genus is common to Australia and New Zealand and the Indian Archipelago. Of the Australian species one is found in New Zealand also, and another in the Indian Archipelago, the remainder are endemic. The species are very difficult to distinguish. The whole of those with 5-celled ovaries, from *L. lanigerum* to *L. erubescens*, different as some of them appear at first sight, pass so gradually one into the other that they might be readily admitted as varieties of one species, whilst on the other hand many of the varieties here enumerated have been distinguished as species by R. Brown, whose herbarium contains a beautiful series of well-selected specimens, as well as by other eminent botanists whose opinions are entitled to great weight. The genus requires, therefore, much further study on the part of those who have the opportunity of observing it in its native stations. From the dried specimens, whether of the species here admitted or of the varieties or races, I have been unable to discover any positive discriminating characters.

Most authors describe the calyx-lobes of *Leptospermum* as valvate; I have always found them decidedly imbricate in the young bud, even in the Javanese specimens communicated by Blume.

SECTION I. *Fabricia*.—Ovary usually 6- to 10- or 4-celled. Ovules numerous. Seeds when perfect rather broad, fringed or winged at the angles (as far as known). Flowers closely sessile.

Ovary usually 6- to 10-celled. Eastern and South-eastern species.

Calyx villous. Capsule half-exserted 1. *L. Fabricia*.

Calyx glabrous. Capsule slightly protruding above the calyx-tube 2. *L. lævigatum*.

Ovary usually 4-celled. Calyx glabrous. Western species . . . 3. *L. firmum*.

SECTION II. *Euleptospermum*.—Ovary usually 5-celled, or here and there 4-celled, or 3-celled in the last two species. Ovules numerous. Seeds, both perfect and sterile, narrow-linear.

Calyx-tube glabrous. Ovary 5- or rarely 4-celled.

Leaves flat or with recurved margins, obtuse or scarcely pointed (except in the large variety) 4. *L. flavescens*.

Leaves flat or concave, pungent-pointed, narrow or small . . . 5. *L. scoparium*.

Calyx-tube pubescent or villous. Ovary 5-, rarely 4-celled.

Branches spinescent. Leaves mostly oblong. Calyx-tube loosely villous.

Capsule not prominent. Flowers large. Western species . . . 7. *L. spinescens*.

Branches not spinescent. Flowers sessile or nearly so. Eastern species.

Calyx broad and obtuse at the base, woolly, loosely villous, or closely tomentose.

Leaves linear, concave, pungent-pointed 6. *L. arachnoideum*.

Leaves obovate, oblong or elliptical, flat or with recurved margins, obtuse or shortly mucronate 8. *L. lanigerum*.

Leaves very small (mostly under 2 lines) obovate or oblong, flat, obtuse. Flowers small 9. *L. parvifolium*.

Calyx usually attenuate at the base, at least when young, silky with appressed hairs.

Calyx-lobes appressed-silky, usually persistent 10. *L. stellatum*.

Calyx-lobes silky, but thin and deciduous. Stems prostrate 13. *L. rupestre*.

Calyx-lobes membranous, deciduous. Erect or spreading shrubs 12. *L. myrtifolium*.

Branches not spinescent, often flexuose. Flowers and leaves small. Calyx silky, the lobes very small. Capsule not prominent. Southern species 14. *L. myrsinoides*.

Branches not spinescent. Flowers pedicellate. Calyx silky. Capsule not prominent.

Eastern species. Calyx usually attenuate at the base 11. *L. attenuatum*.

Western species. Branches often flexuose. Flowers and leaves small. Calyx obtuse at the base 15. *L. erubescens*.

Ovary 3-celled.

Flowers small, glabrous. Capsule shorter than the calyx-tube.

Eastern and tropical species 16. *L. abnorme*.

Flowers rather large. Calyx densely villous. Western species 17. *L. Roei*.

SECTION III. **Pericalymma**.—Ovary usually 3-celled. Ovules few (4 to 8 in each cell). Branchlets flexuose and dichotomous. Western species.

Tall erect shrubs, the trunk not turgid.

Flowers rather large. Calyx clothed with long hairs, the lobes as long as the tube 18. *L. floridum*.

Flowers rather small. Calyx shortly silky, the lobes much shorter than the tube 19. *L. ellipticum*.

Dwarf shrub, the base of the stem thickened, almost fusiform 20. *L. crassipes*.

L. obliquum, Colla, Hort. Ripul. App. 2. 351, described in leaf only, is not now to be determined. It is probably *L. lanigerum* or *L. flavescens*. *L. tortuosum* and *L. burifolium*, Dehnh. Rivist. Napol. and *L. ciliolatum*, *L. hypericifolium*, *L. cupressinum*, and *L. cuneiforme*, Otto and Dietr. Allgem. Gart. Zeit., described from garden specimens and quoted with short diagnoses in Walp. Rep. ii. 169, are all unknown to me. They are probably, as well as numerous names of *Leptosperma*, taken from garden catalogues or herbaria by Steudel or by Schauer, and which, being otherwise unpublished, are here omitted, nearly all of them forms of *L. flavescens*, *L. lanigerum*, or *L. scoparium*.

SECTION I. **Fabricia**.—Ovary usually 6- to 10-celled or 4-celled. Ovules numerous. Seeds usually 1 or 2, perfect in each cell, rather broad, fringed or winged at the angles, the remainder sterile, slender or flat. Flowers closely sessile.

1. ***L. Fabricia*, Benth.** A shrub or tree resembling the larger specimens of *L. laevigatum*, but the branches often loosely hairy. Leaves from oblong-lanceolate to almost obovate, $\frac{3}{4}$ to $1\frac{1}{2}$ in. long, obtuse or slightly mucronate, 3- or 5-nerved. Flowers larger than in *L. laevigatum*, mostly termi-

nating short leafy branchlets, surrounded by orbicular imbricate deciduous bracts. Calyx more or less tomentose-villous, the tube hemispherical, the lobes nearly as long as the tube, orbicular, very obtuse, silky or villous outside. Stamens numerous. Ovary usually 10-celled. Capsule very prominent above the calyx-rim, the free part usually as long as the enclosed portion. Seeds not seen quite perfect, but in the apparently ripe capsules already burst open the enlarged ovules of each cell are readily detached in a mass with the placenta, the whole assuming the shape represented by Gærtner as that of the seed; enlarged ovules or young seeds very flat, obliquely obovate-oblong, the upper ones falcate, very differently shaped from those of *L. lævigatum*, not winged or very slightly so at the base.—*Fabricia myrtifolia*, Gærtn. Fruct. i. 175. t. 35.

Queensland. Endeavour river, *Banks and Solander*; Haggerstone and Lizard Islands, *A. Cunningham*; Cape York, *W. Hill*. The Banksian specimens described by Gærtner are in the same state, with unripe seeds only, as *A. Cunningham's*.

N. S. Wales? Some flowering specimens of *Vicary's*, without the precise locality, appear to belong to this species.

2. *L. lævigatum*, *F. Muell. Ann. Rep.* 1858, and *Fragm.* iv. 60. A tall shrub, often arborescent and attaining 20 to 30 ft., glabrous and somewhat glaucous, the young shoots often slightly silky. Leaves from obovate-oblong to oblong-cuneate or narrow-oblong, obtuse, mostly $\frac{1}{2}$ to $\frac{3}{4}$ in. long, but sometimes 1 in. or even more, more or less conspicuously 3-nerved. Flowers axillary, solitary and sessile or nearly so, or very rarely 2 together on a very short common peduncle. Bracts imbricate, bracteoles cohering, but all very deciduous. Calyx glabrous; tube at first broadly turbinate, at length nearly hemispherical; lobes triangular, much shorter than the tube, usually persistent for a long time but falling off from the ripe fruit. Stamens numerous round a broad very flat disk. Ovary flat-topped, usually 10-celled; style short in a central depression; stigma broadly peltate. Capsule nearly flat and scarcely prominent above the calyx-border. Perfect seeds usually 1 or very few in each cell, linear-oblong, more or less compressed, incurved, fringed all round with a transparent wing which readily splits up into cilia. Embryo filling the seed, the cotyledons ovate-oblong, broader and longer than the radicle.—*Fabricia lævigata*, Gærtn. Fruct. i. 175; Bot. Mag. t. 1304; Hook. f. Fl. Tasm. i. 141; *F. myrtifolia*, Sieb. Pl. Exs., not of Gærtn.

N. S. Wales. Port Jackson, *R. Brown, Sieber n.* 309; near the sea, *Woolfs*; northward to Hastings river, *Beckler*; and southward to Gabo Island, *Maplestone*.

Victoria. Port Phillip, *R. Brown*; on the seacoast, *Robertson, F. Muell.*

Tasmania. King's Island, *R. Brown*; maritime sands, common in some parts of the N. and N.W. coast and islands of Bass's Straits, *J. D. Hooker*.

Var. ? *minus*, *F. Muell.* Branches slender. Leaves oblong-cuneate, mucronate-acute. Flowers much smaller than in the common form, the calyx-lobes more petal-like. Ovary usually 6- to 8-celled, with fewer ovules than in the common form and the capsules more convex, according to *F. Muell.*, with or without wings.—*Fabricia coriacea*, *F. Muell.*, *Miq. in Ned. Kruidk. Arch.* iv. 147. Perhaps a distinct species.

N. S. Wales. Darling river, *Victorian Expedition*.

Victoria. N.W. desert, *Lockhart Morton, Dallachy*; scrub near the mouth of the Murray, *F. Muell.*

S. Australia. St. Vincent's and Spencer's Gulfs to the Murray, *F. Muell.* and others.

3. ***L. firmum*, Benth.** A tall erect glabrous shrub, with virgate branches. Leaves linear or linear-lanceolate, acute or rather obtuse, narrowed to the base, rigid, $\frac{1}{2}$ to 1 in. long. Flowers rather large, closely sessile. Bracts small, broad, truncate, persistent. Calyx glabrous, tube very broad; lobes short, broad, membranous, at length deciduous. Ovary 4-celled or rarely 3- or 5-celled, with numerous closely-packed but short ovules in each cell. Fruit hard, usually almost cubical or triquetrous, the capsule protruding from the calyx-tube. Seeds usually 1 or 2 perfect in each cell, obovate-oblong, somewhat flattened, more or less surrounded by a thin wing breaking up into cilia as in *L. lævigatum*, and embryo also as in that species; barren seeds very numerous, small, often irregularly winged.—*Homalospermum firmum*, Schau. in Linnæa, xvii. 242, and in Pl. Preiss. i. 119.

W. Australia. King George's Sound, *R. Brown*; chiefly in marshy places, from the south coast to Swan River, *A. Cunningham*, *Drummond*, 1st Coll. n. 139, *Preiss*, n. 143 and 148, and others.

SECTION II. EULEPTOSPERMUM.—Ovary usually 5-celled or, especially in the last two species, 4- or 3-celled. Ovules numerous. Seeds, both perfect and sterile, narrow-linear, without wings.

4. ***L. flavescens*, Sm. in Trans. Linn. Soc. iii. 262.** Usually a tall shrub, quite glabrous or the young parts minutely silky-hoary. Leaves from narrow-oblong or linear-lanceolate to broadly oblong or even obovate, obtuse or scarcely acute, rigid, flat, nerveless or 1- or 3-nerved, attaining $\frac{3}{4}$ in. in the largest forms but usually under $\frac{1}{2}$ in. and sometimes all very small. Flowers solitary, terminating the branchlets or axillary and nearly sessile, as variable in size as in *L. lanigerum*, and of the same shape. Calyx quite glabrous, the tube broadly campanulate or hemispherical; lobes ovate, as long as the tube, membranous or thickened in the centre. Ovary 5-celled, more or less convex on the top, with a short central depression round the style. Capsule prominent above the calyx-tube. Seeds all narrow-linear, without wings.—DC. Prod. iii. 227; Hook. f. Fl. Tasm. i. 139; *Melaleuca trinervia*, White, Trav. 229. t. 24²; *Leptospermum polygalifolium*, Salisb. Prod. 350; *L. Thea*, Willd. Spec. Pl. ii. 949, and (on his authority) *Melaleuca Thea*, Wendl. Sert. Hannov. 24. t. 13; *L. tuberculatum*, Poir. Dict. Suppl. iii. 338 (from the character given).

Queensland. Abundant about Brisbane river and Moreton Bay, *A. Cunningham*, *F. Mueller*, and others; Percy Island, *A. Cunningham*; Port Denison, *Fitzalan*.

N. S. Wales. Port Jackson to the Blue Mountains, *R. Brown*, *Sieber*, n. 315, and *Fl. Mixt.* n. 549, and others; in the interior, *Fraser*; New England, *C. Stuart*; Illawarra, *A. Cunningham*.

Victoria. Buffalo Range, Yarra, Goulbourn, and Ovens rivers, *F. Mueller*.

Tasmania. Abundant on banks of rivers, etc. *J. D. Hooker*.

This species, which extends also into the Indian Archipelago and Malacca, is scarcely to be distinguished from *L. lanigerum* except by the absence of all hairs or down from the calyx, and is equally variable, the extreme forms being at first sight so dissimilar that it requires the examination of a large number of specimens to believe in their specific identity, and at the same time it is almost impossible to draw a precise line of demarcation between this and several others. The following are the varieties which appear to be the most prominent and distinct.

a. *commune*. Leaves narrow, from under $\frac{1}{2}$ in. to $\frac{3}{4}$ in. long. Flowers middle-sized.—*Bot. Mag.* t. 2695; *L. porophyllum*, Cav. Ic. iv. 17. t. 330. f. 2 (from the fig. and descr.); *L. amboinense*, DC. Prod. iii. 229, at least the specimens so named by Miquel and Blume;



Leptocarpum *lanceum*?
leptocarpum?

Macklottia amboinensis, Korth. in Ned. Kruidk. Arch. i. 196.—From Tasmania to Queensland, and in the Indian Archipelago.

b. *obovatum*, F. Muell. Leaves from broadly obovate to obovate-oblong, under $\frac{1}{2}$ in. long.—*L. obovatum*, Sweet, Fl. Austral. t. 36; *L. micromyrtus*, Miq. in Ned. Kruidk. Arch. iv. 145 (from the character given); N. S. Wales and Victoria, the Port Jackson specimens with rather thin and 3-nerved leaves, the southern ones with much thicker rigid nerveless leaves. *L. emarginatum*, Wendl. in Spreng. Syst. ii. 491, has the leaves narrow as in *a*, but very obtuse or emarginate as in *b*.

c. *grandiflorum*. Leaves rather large. Flowers larger than in any other variety.—*L. grandiflorum*, Lodd. Bot. Cab. t. 514; *L. virgatum*, Schau. in Linnæa, xv. 410; *L. nobile*, F. Muell.; Miq. in Ned. Kruidk. Arch. iv. 145.—Paramatta, *Woolts*; Blue Mountains, *A. Cunningham*; Tasmania, *C. Stuart*.

d. *microphyllum*. Leaves flat, oblong or lanceolate, $\frac{1}{4}$ to $\frac{1}{2}$ in. long.—Chiefly in Queensland.

e. *minutifolium*, F. Muell. Leaves all under $\frac{1}{2}$ in. and mostly under 2 lines long, obovate or oblong, concave and recurved. Flowers very small.—New England, *C. Stuart*. This may prove sufficiently distinct to be considered as a species.

5. ***L. scoparium***, Forst. Char. Gen. 48. A rigid very much branched shrub, in alpine situations low and almost prostrate, more usually erect, and attaining sometimes 10 to 12 ft., the young shoots often silky, the adult foliage mostly glabrous. Leaves from ovate to linear-lanceolate or linear, rigid, concave, acute and pungent-pointed, mostly under $\frac{1}{2}$ in. long. Flowers axillary, sessile and solitary, or rarely terminating short lateral branchlets. Calyx quite glabrous, as variable in size as in *L. flavescens*, and the flowers and fruit otherwise precisely as in that species.—Sm. in Trans. Linn. Soc. iii. 262; Andr. Bot. Rep. t. 622; DC. Prod. iii. 227; Bot. Mag. t. 3419; Hook. f. Fl. Tasm. i. 138; Schau. in Linnæa, xv. 424; *L. floribundum*, Salisb. Prod. 349, and *L. recurvifolium*, Salisb. l. c. 350 (from the characters given); *L. juniperinum* (with narrow leaves), Sm. in Trans. Linn. Soc. iii. 263; Vent. Jard. Malm. t. 89; Schau. in Linnæa, xv. 431; *L. multiflorum*, Cav. Ic. Pl. iv. 17. t. 331. f. 1; *L. juniperifolium*, Cav. l. c. 18. t. 331. f. 2; *L. squarrosus*, Sieb. Pl. Exs.; *L. rubricaulis*, Link, Enum. Hort. Berol. ii. 25; *L. styphelioides*, Schau. in Linnæa, xv. 423; *L. aciculare*, Schau. l. c. 429; *L. oxycedrus*, Schau. l. c. 432; *L. baccatum*, Schau. l. c. 433, not of Sm. including according to Schau. *L. persiciflorum*, Reichb. Hort. Bot. iii. 8. t. 220; *L. divaricatum*, Schau. in Walp. Rep. ii. 923 (a starved small-leaved form).

Queensland. Moreton Bay, *Murray*, according to Schauer.

N. S. Wales. Port Jackson to the Blue Mountains, *R. Brown*, *Sieb.* n. 310, 311, and *Fl. Mist.* n. 547, 548, *A. Cunningham*, and others; northward to Clarence river, *Becker*; and southward to Illawarra, *A. Cunningham*; and Twofold Bay, *F. Mueller*.

Victoria. Common in heaths and moist situations, *Robertson*, *F. Mueller*.

Tasmania. Very abundant throughout the colony, *R. Brown*, *J. D. Hooker*, etc.

S. Australia. Moist localities, St. Vincent's and Spencer's Gulfs, *F. Mueller*; Kangaroo island, *Waterhouse*.

The species is also in New Zealand.

6. ***L. arachnoideum***, Sm. in Trans. Linn. Soc. iii. 263. A rigid much branched shrub, with the habit of the narrow-leaved forms of *L. scoparium*, and the same pungent crowded rigid concave linear leaves, but with the flowers of *L. lanigerum*, mostly on short lateral leafy branches, closely surrounded by floral leaves. Calyx broad, rather large, loosely woolly-hairy. Capsule shortly protruding from the calyx-tube, 5-celled or very rarely 3- or 4-celled.—DC. Prod. iii. 228; *L. arachnoides*, Gærtn. Fruct. i. 175. t. 35; *L. triloculare*, Vent. Jard. Malm. t. 88; Lodd. Bot. Cab. t. 791.

N. S. Wales. Port Jackson, *R. Brown*, *A. and R. Cunningham*, and others.

L. baccatum, Sm. in Trans. Linn. Soc. iii. 264, is a form with much less woolly calyxes, almost connecting this species with *L. scoparium*. Some specimens from *C. Moore* are quite like the one in Smith's herbarium.

7. ***L. spinescens***, Endl. in *Hueg. Enum.* 51. A very rigid shrub with stout divaricate branches, the smaller ones spinescent. Leaves from obovate to cuneate-oblong or oblanceolate, mostly obtuse, thick and rigid, $\frac{1}{4}$ to $\frac{1}{2}$ in. long, 1-nerved or obscurely 3-nerved. Flowers rather large, solitary and closely sessile. Calyx-tube broadly hemispherical, densely woolly-tomentose, 3 to 4 lines diameter; lobes ovate, tomentose, much shorter than the tube, persistent. Petals scarcely above 2 lines diameter. Stamens about 20; connective gland of the anthers particularly large. Ovary flat-topped, with a very slight central depression, in many flowers rudimentary or completely abortive, 5-celled; ovules very numerous. Capsule hard, nearly flat and not produced above the calyx-tube.

W. Australia. Lucky Bay, *R. Brown*; King George's Sound or to the eastward, *Huegel*, *Drummond*, 1st Coll. n. 146 or 148, *Baxter*, *Roe*.

8. ***L. lanigerum***, Sm. in Trans. Linn. Soc. iii. 263. A tall erect shrub, sometimes growing into a small tree, rarely low and bushy, the branchlets usually softly pubescent. Leaves from obovate-oblong to elliptical or narrow-oblong, exceedingly variable in size and indumentum, in some luxuriant specimens attaining $\frac{3}{4}$ in. or even more, but naturally not above $\frac{1}{2}$ in. and in some varieties all very much smaller, obtuse or mucronate-acute, more or less hoary silky or hairy underneath or on both sides, rarely glabrous except a few silky hairs on the margin, when broad and thin showing 1, 3 or 5 nerves, more frequently rigidly coriaceous, the nerves scarcely prominent or concealed by the indumentum. Flowers solitary, terminating very short leafy branchlets, or rarely sessile on the branches without intervening leaves. Calyx broad, more or less densely clothed with silky or woolly hairs; lobes triangular, often as long as the tube. Petals twice as long, broad, distinctly clawed. Stamens about 20 to 30, in a single series. Ovary 5-celled, convex, with a central depression, with numerous ovules in each cell. Capsule nearly globular but depressed at the top, more or less protruding from the calyx-tube, the lobes wearing off, varying from under 3 to above 4 lines diameter. Seeds linear without wings; cotyledons as long as or rather longer than the radicle.—DC. Prod. iii. 227; Hook. f. Fl. Tasm. i. 139; *L. australe*, Salisb. Prod. 350; *Melaleuca trinervia*, White, Journ. 229. t. 24 (quoted by Smith and DC. as *L. trinerve*), is either this or *L. flavescens*.

N. S. Wales. Port Jackson to the Blue Mountains, *R. Brown*, and others, northward to Mount Mitchell, *Beckler*, southward to Illawarra, *A. Cunningham*, and Twofold Bay, *F. Mueller*, and in the interior to Macquarrie and Cox's rivers, *Fraser*, *A. Cunningham*.

Victoria. Gipps' Land and mountainous districts generally, neighbourhood of Melbourne, Port Phillip, etc., *F. Mueller* and others.

Tasmania. Abundant throughout the island in many soils and situations, *J. D. Hooker*.

S. Australia. Rivoli Bay, mouth of the Glenelg, Port Adelaide, Onkaparinga range, *F. Mueller*.

This exceedingly variable species has the calyx sometimes nearly glabrous, and then passes almost into *L. flavescens*, whilst the smaller-flowered forms are closely connected with several of the following species; the most marked varieties are:—

a. Flowers large. Leaves coriaceous with a very short point, shining above, silky-hairy

underneath, with recurved margins. Bracts large and often persistent.—*L. grandifolium*, Sm. in Trans. Linn. Soc. vi. 299.

b. Flowers large. Leaves broad, about $\frac{1}{2}$ in. long, silky or nearly glabrous, the latter including *L. nitidum*, Hook. f. Fl. Tasin. i. 139, and only differing from *L. flavescens* in the hairy calyx.

c. Flowers large. Leaves narrower, $\frac{1}{2}$ to 1 in. long.—*L. grandifolium*, Bot. Mag. t. 1810; Lodd. Bot. Cab. t. 701; *L. tosum*, Schau. in Linnæa, xv. 422 (from the description).

d. Flowers large. Leaves rather narrow, $\frac{3}{4}$ to 1 in., long, very rigid, with almost pungent points, connecting the species with *L. scoparium*. Interior of N. S. Wales and Victoria.

e. Flowers smaller. Leaves mostly under $\frac{1}{2}$ in., often silky on both sides, the commonest form in Tasmania, Victoria, and S. Australia.—*L. pubescens*, Lam. Dict. iii. 466; *L. villosum*, Otto and Dietr.; Walp. Rep. ii. 169; *L. Cunninghamii*, Schau. in Linnæa, xv. 420; *L. glaucescens*, Schau. l. c. 421; *L. Candollei*, Schau. l. c. 441; *L. microphyllum*, F. Muell.; Miq. in Ned. Kruidd. Arch. iv. 142.

f. Flowers small. Leaves small, obovate or orbicular. Mountains of Victoria and probably also the specimens from Mount Mitchell, which are however imperfect.

L. pilosum, Schau. in Walp. Rep. ii. 923, is described from Tasmanian specimens of Cunningham's n. 84. I have not found this n. in his herbarium, but the only Tasmanian species to which Schauer's diagnosis is applicable is *L. lanigerum* in some of its numerous forms. *L. splendens*, Schau. l. c. seems to refer to one of the larger varieties of *L. lanigerum*.

9. ***L. parvifolium***, Sm. in Trans. Linn. Soc. iii. 263. A shrub with slender branches, pubescent or woolly when young. Leaves obovate or oblong, very obtuse, thick, nerveless or faintly 3-nerved, flat, 1, 2 or rarely 3 lines long. Flowers small, solitary or rarely 2 together at or near the end of lateral leafy branchlets. Calyx-tube rather broadly campanulate, but rarely above $1\frac{1}{2}$ lines diameter, loosely and softly villous, lobes ovate, membranous, glabrous or slightly pubescent, nearly as long as the tube. Ovary 5-celled, short, slightly convex.—DC. Prod. iii. 228; *L. eriocalyx*, Sieb. Pl. Exs.

N. S. Wales. Port Jackson to the Blue Mountains, *R. Brown*, *Sieber*, n. 313, and others; and westward to Liverpool Plains, *A. Cunningham*; near Richmond, *C. Moore*. Very near the small-leaved forms of *L. lanigerum*, of which F. Mueller considers it a variety.

10. ***L. stellatum***, Cav. Ic. iv. 16. t. 330. f. 1 (from the figure and description). Much-branched and erect, from 2 or 3 to several feet high, the young shoots silky-pubescent, the adult foliage glabrous or nearly so. Leaves from rather broadly elliptical-oblong to oblong-linear or linear-lanceolate, mostly from $\frac{1}{4}$ to $\frac{1}{2}$ in. long, obtuse or mucronate-acute, rather rigid, more or less conspicuously 1- or 3-nerved. Flowers rather small, sessile or very shortly pedicellate in the upper axils or terminating short leafy shoots and then often two together. Calyx-tube broadly turbinate, densely silky-pubescent; lobes silky, more acute and more persistent than in *L. myrtifolium*. Ovary flat-topped or concave. Capsule level with the margin of the calyx or scarcely protruding.—*L. sericatum*, Lindl. in Mitch. Trop. Austr. 298.

Queensland. Moreton Island, *M^cGillivray*; Logan river, *Fraser*; near Lake Salvator, *Mitchell*; Rockingham Bay, *Dallachy* (specimens in fruit only, and doubtful. Capsules very small).

N. S. Wales. Port Jackson to the Blue Mountains, *A.* and *R. Cunningham* and others.

Var. *grandiflorum*. Flowers larger, the calyx-tube fully 2 lines long.—*L. gnidiæfolium* of German gardens, but scarcely of DC. Queensland, *Bowman*; Port Jackson, *Herb. F. Mueller*.

11. ***L. attenuatum***, Sm. in *Trans. Linn. Soc.* iii. 262. Very near *L. stellatum*, differing only in the pedicellate flowers. Branches usually slender and loose. Leaves mostly narrow-oblong and about $\frac{1}{2}$ in. long, but varying from broadly oblong and $\frac{1}{4}$ in. to linear and above 1 in. long. Flowers usually small, solitary in the axils or 2 together on short leafy branchlets, on pedicels of 1 to 2 lines. Calyx-tube densely silky-pubescent, contracted at the base, lobes usually persistent. Capsule scarcely prominent above the calyx-rim.—*L. pendulum*, Sieb. Pl. Exs.; *L. gnidiæfolium*, DC. Prod. iii. 228?; *L. brevipes*, F. Muell. in *Trans. Vict. Inst.* 1855, 125.

Queenand. Northumberland islands, *R. Brown* (with small leaves and flowers); Ranges near Peak Downs, *F. Mueller* (with long narrow leaves).

N. S. Wales. Port Jackson to the Blue Mountains, *Sieber*, n. 312; Hastings river, *Beckler*; New England, *C. Stuart*. (Leaves small or middle sized, often somewhat cuneate, almost passing into *L. stellatum*.) Bent's Basin, *Woolfs* (with very narrow leaves).

Victoria. Avon, Mitta-Mitta, Ovens, and other rivers in Gipps' Land, *F. Mueller*.

12. ***L. myrtifolium***, Sieb. in *DC. Prod.* iii. 238. A tall shrub attaining 8 to 10 ft. but flowering when only 1 to 2 ft. high, the branches usually more slender than in *L. lanigerum*, glabrous or silky. Leaves usually small and rarely $\frac{1}{2}$ in. long, obovate or oblong, flat or concave, nerveless or 1- or 3-nerved, glabrous or silky-white. Flowers rather small, all or nearly all solitary, sessile and axillary. Bracts none or already fallen from the very young bud. Calyx-tube turbinate, silky with appressed hairs, rarely above 2 lines diameter, lobes shorter than the tube, glabrous or slightly silky, membranous and much more deciduous than in *L. lanigerum*. Ovary flat-topped or concave, with a central depression round the style, 5-celled. Capsule flat-topped, on a level with or scarcely protruding from the calyx-rim.—Hook. f. Fl. Tasm. i. 140; *Eriostemon*? *trinerve*, Hook. Journ. Bot. i. 254; *L. multicaule*, A. Cunn. in Field, N. S. Wales. 349; Schau. in Walp. Rep. ii. 923.

Queensland. Moreton Island, *M'Gillivray* (like a var. of *L. lanigerum* from the same place, but with the calyx of *L. myrtifolium*); Rockhampton, *Thozet* (leaves narrow and glabrous).

N. S. Wales. Port Jackson to the Blue Mountains, *Sieber*, n. 314; in the S.W. interior, *Fraser* (all with narrow canescent leaves); near Bathurst, *A. Cunningham* (leaves small and silky).

Tasmania. Sandhills near the sea in the northern parts of the island, *J. D. Hooker* (glabrous with small leaves). The species appears to pass on the one hand into *L. stellatum*, and on the other into *L. lanigerum*.

13. ***L. rupestre***, Hook. f. in Hook. Ic. Pl. t. 308, and Fl. Tasm. i. 140. t. 30. A procumbent or prostrate shrub, closely allied to the var. *obovatum* of *L. flavescens*, but connecting as it were that species with some forms of *L. myrtifolium* and *L. lanigerum*, and may be almost considered as an alpine variety of either of them. Leaves obovate to oblong, narrowed into a petiole, thick and usually nerveless, obtuse or nearly so, rarely exceeding 3 lines. Flowers small, sessile in the axils or terminating short leafy branchlets. Calyx-tube broad, loosely silky, lobes membranous and deciduous, but more or less silky. Capsule prominent above the calyx-rim as in *L. flavescens*.

Tasmania. Common on the tops of mountains at an elevation of 3 to 5000 ft., *J. D. Hooker*.

14. **L. myrsinoides**, *Schlecht. Linnæa*, xx. 653. A dense bushy shrub, glabrous or the young shoots silky-pubescent, approaching sometimes in habit *L. scoparium*, but the leaves not pungent, or *L. erubescens*, but with more sessile flowers, and sometimes with flexuose branches almost as in the section *Pericalymma*, and distinguished from all by the shortness of the calyx-lobes. Leaves from obovate to oblong-linear or cuneate, obtuse or obscurely mucronate-acuminate, rigid, concave, 3-nerved, often recurved, mostly 2 to 3 lines but sometimes $\frac{1}{2}$ in. long. Flowers often polygamous, small, almost all terminating very short leafy branchlets. Calyx-tube silky-white with appressed hairs, campanulate, somewhat turbinate, under 2 lines diameter, the free margin often glabrous; lobes exceedingly short, membranous, glabrous. Ovary 4- or 5-celled, nearly flat-topped, with a small central depression. Capsule 2 to 3 lines diameter, scarcely projecting above the calyx.

Victoria. Common in heathy tracts in the western districts, *Robertson, F. Mueller*, and others; Snowy River, *F. Mueller*; N.W. portion, *L. Morton*; Wimmera, *Dallachy*.

S. Australia. Sandy districts between Gawler and Light rivers, *Behr*; St. Vincent's Gulf, *Whittaker, Blandowski*; Kangaroo Island, *Waterhouse*.

15. **L. erubescens**, *Schau. in Pl. Preiss.* i. 121. A spreading much-branched shrub of several feet, the branchlets rather slender but rigid and often flexuose, the young shoots silky, or at length glabrous or nearly so. Leaves from obovate and scarcely 2 lines, to oblong and nearly $\frac{1}{2}$ in. long, rather thick, obscurely 1- or 3-nerved, often concave and recurved, especially when short. Flowers usually shortly pedicellate, axillary and solitary or two together on short lateral branchlets. Calyx-tube broadly turbinate, 1 to $1\frac{1}{2}$ lines long, silky or rarely nearly glabrous; lobes ovate-triangular, persistent, more or less fringed-ciliate. Stamens usually 15 to 20, but sometimes fewer; filaments slightly dilated. Ovary 5- or rarely 4-celled at first, flat-topped; ovules numerous in each cell. Capsule usually more convex, but rarely protruding from the calyx-rim.

W. Australia. Gordon river, *Preiss*, n. 133; Gardner ranges, *Maxwell*, also *Drummond*, 1st Coll. n. 145, *Roe*.

Var. *stricta*. Branches straighter, leaves longer, *Drummond*, 5th Coll. n. 130, and *Suppl.* n. 28 (the latter intermediate); Phillips and Oldfield rivers, *Maxwell*.

Var. *psilocalyx*. Calyx glabrous or nearly so, and distinctly ribbed.—*Kunzea podantha*, *F. Muell. Fragm.* ii. 28; W. Australia, *Drummond*, 5th Coll. n. 129; Mount Barker, *Oldfield*; Phillip's Flat, Fitzgerald ranges, *Maxwell*.

L. sericeum, *Schau. in Pl. Preiss.* i. 121; from the Quangen plains, *Preiss*, n. 135, appears, from the poor specimens seen, to be this species, and does not at all agree with *Labillardière's* figure, which represents *Kunzea sericea*.

16. **L. abnorme**, *F. Muell. Herb.* A tall shrub with rather slender virgate branches, glabrous or the young shoots minutely silky. Leaves linear-lanceolate, acute or mucronate, mostly 1 to 2 in. long, prominently 1-nerved, with 1 or 2 faint lateral nerves on each side. Flowers nearly sessile, rather small, axillary or several together in a compact sessile terminal corymbose raceme. Bracts very deciduous. Calyx-tube turbinate, glabrous, nearly $1\frac{1}{2}$ lines long; lobes ovate-triangular, persistent, with petal-like margins. Petals about twice as long as the calyx-lobes, less contracted at the base than in most *Leptospermums*. Stamens about 25, crowded opposite

the sepals, solitary opposite the petals. Ovary 3-celled, slightly convex, with a deep central depression; ovules numerous. Capsule convex, but shorter than the calyx-tube.—*Kunzea brachyandra*, F. Muell. Fragin. ii. 27.

N. Australia. Port Essington, *Armstrong*. (Flowers small and mostly imperfect.)

Queensland. Northumberland Island, *R. Brown*; Duck Creek, *Dallachy*. (Leaves in both only about $\frac{1}{2}$ in. and the specimens in fruit only and therefore doubtful.)

N. S. Wales. Hastings river, *A. Cunningham*, *Dallachy*; Severn river, *C. Stuart*.

17. **L. Roei**, *Benth.* Branches slender, virgate, silky-pubescent. Leaves obovate-oblong, obtuse, narrowed at the base, flat, 3 to nearly 6 lines long, thick, silky-white, or at length glabrous. Flowers rather large, nearly sessile and axillary. Bracts small. Calyx-tube turbinate, rather broad, densely villous, with white silky hairs, about $1\frac{1}{2}$ lines long; lobes very silky, persistent, about 1 line long. Ovary 3-celled, with numerous ovules in each cell.

W. Australia. In the interior, *Roe*.

SECTION III. PERICALYMMA.—Ovary usually 3-celled. Ovules few (4 to 8 in each cell). Seeds often solitary in each cell, not winged. Branches usually dichotomous and flexuose.

The following three species may possibly prove to be varieties of a single one.

18. **L. floridum**, *Benth.* An erect shrub, attaining 10 ft., but flowering when still small, with the habit, flexuose dichotomous branchlets, foliage and inflorescence of *L. ellipticum*, only differing in the larger flowers, the calyx and bracts clothed with long silky hairs, the calyx-lobes larger, usually about as long as the tube. Stamens numerous.—*Pericalymma floridum*, Schau. in Pl. Preiss. i. 121.

W. Australia. Swan River, *Preiss*, n. 131, *Drummond*, 1st Coll. n. 144.

19. **L. ellipticum**, *Endl.* in *Hueg. Enum.* 51. A tall erect glabrous shrub, the smaller branchlets flexuose and dichotomous. Leaves from obovate-elliptical to narrow-cuneate, obtuse acute or mucronate, usually narrowed at the base, concave and recurved at the end, 2 to 3 lines long or rarely more. Flowers rather small, solitary, sessile in the upper axils and often appearing almost terminal, surrounded by 3 or 4 imbricate scarious bracts. Calyx-tube turbinate, about 1 line long; lobes small, ovate, persistent. Petals obovate, often 2 lines long. Stamens about 15. Ovary 3-celled, with 5 or 6 ovules in each cell, the style in a deep central depression; stigma peltate. Fruiting calyx ovoid, $1\frac{1}{2}$ to 2 lines long, crowned by the erect persistent lobes. Capsule much shorter than the calyx-tube, 3-celled with a hardened endocarp. Seeds solitary in each cell; testa thin; embryo straight, the cotyledons much longer than the radicle.—*Pericalymma ellipticum*, Schau. in Pl. Preiss. i. 120.

W. Australia. King George's Sound to Vasse and Swan rivers, *Huegel*, *Drummond*, 2nd Coll. n. 80, *Baxter*, *Preiss*, n. 132 and 157.

20. **L. crassipes**, *Lehm.* Ind. Sem. Hort. Hamb. 1842, according to *Schauer*. A small shrub, from a few inches to nearly a foot high, the base of the stem much thickened and almost fusiform, otherwise the tortuous dichotomous branches, foliage and inflorescence are those of *L. ellipticum*. Leaves usually small. Flowers much smaller than in *L. ellipticum*. Calyx-tube glabrous, turbinate, $\frac{3}{4}$ line long; lobes nearly as long. Petals about 1 line

long. Stamens about 10. Ovary 3-celled with 4 or 5 ovules in each cell, shorter than in *L. ellipticum*.—*Pericalymma crassipes*, Schau. in Pl. Preiss. i. 120.

W. Australia. King George's Sound, *R. Brown*; boggy ground near Albany, *Preiss*, n. 155, also *Druand*, n. 220. Possibly an abnormal state rather than a variety of *L. ellipticum*.

19. **KUNZEA**, Reichb.

(*Salisia*, *Lindl.*; *Pentagonaster*, *Klotzsch*.)

Calyx-tube ovoid or globular, adnate to the ovary at the base, the free part rarely dilated; lobes 5, small, imbricate or open, usually erect, green or scarious at the edges only. Petals 5, small, orbicular, spreading. Stamens longer than the petals, indefinite, free, in 1 or several series; filaments filiform; anthers small, versatile; cells parallel, opening in longitudinal slits, the connective with a small globular gland. Ovary 2- to 5-celled, usually glabrous on the top, with 2 or more frequently numerous ovules in each cell, horizontal or pendulous from a more or less peltate placenta; style filiform, inserted in a slight central depression of the ovary; stigma small or capitate. Capsule wholly inferior, not woody, and in one species fleshy, crowned by the persistent scarcely hardened free portion of the calyx, opening at the top loculicidally. Seeds pendulous, oblong or obovoid; testa thin or firm; embryo straight; cotyledons plano-convex, longer than the superior radicle.—Shrubs, often heath-like. Leaves alternate or very rarely here and there opposite, small, entire. Flowers sessile or rarely pedicellate in the upper axils, or more frequently in terminal heads, rarely an oblong spike below the end of the branch, with a broad scale-like bract, and 2 smaller bracteoles under each flower, and sometimes several empty bracts imbricate round the head.

The genus is limited to Australia. Formerly included in *Metrosideros*, it differs in habit, inflorescence, and structure of the ovary, much nearer allied to *Leptospermum*, but readily distinguished by the exerted stamens; it also passes into *Callistemon*, through *K. Baxteri*. In *K. pauciflora* some of the leaves are often exceptionally opposite, so as almost to connect the genus with *Hypocalymma*.

SECTION I. Eukunzea.—Ovules not numerous (2 to 12) in each cell, pendulous, in 2 rows.

Ovary 2- or 3-celled, with 2 to 4 ovules in each cell.

Leaves linear-cuneate, flat, rigid, 2 to 4 lines long. Flowers small, numerous, in dense globular heads, glabrous or nearly so . . .

1. *K. micrantha*.

Leaves semiterete, crowded, about 2 lines long. Flowers few, rather large. Calyx densely woolly-white . . .

2. *K. ericalyx*.

Ovary 2- or 3-celled, with about 8 ovules in each cell. Leaves semiterete, crowded. Flowers small, in dense heads . . .

3. *K. Muellieri*.

Ovary 5-celled, with 8 to 12 ovules in each cell. Western species.

Flowers in globular terminal heads.

Leaves linear, mostly acute, 3 to 4 lines long. Flowers greenish-yellow (pink in the following species) . . .

4. *K. ericifolia*.

Leaves oblanceolate or linear, obtuse, flat, rigid, mostly 2 to 4 lines. Calyx softly villous . . .

5. *K. Preissiana*.

Leaves obovate to linear-cuneate, obtuse, rigid, 2 to 3 lines. Calyx usually glabrous . . .

6. *K. recurva*.

Leaves obovate or oblong, 1 to 1½ lines. Flowers small. Calyx softly villous or glabrous . . .

7. *K. micromera*.

Flowers 2 to 4 together, scarcely capitate. Leaves semiterete, crowded. Calyx glabrous 8. *K. pauciflora*.

SECTION II. **Salisia**.—Ovules very numerous in each cell, covering a peltate placenta.

Ovary 3-celled or rarely 2- or 4-celled. Eastern species.

Flowers axillary or in loose or ovoid heads. Bracts lanceolate or none.

Leaves oblong or linear, 1 line or less. Flowers small, sessile . . . 9. *K. parvifolia*.

Leaves linear or linear-lanceolate, $\frac{1}{4}$ to $\frac{1}{2}$ in. or more.

Flowers pedicellate 10. *K. peduncularis*.

Flowers sessile 11. *K. corifolia*.

Flowers sessile, in globular terminal heads. Bracts broad.

Leaves from obovate to linear-cuneate. Bracts leafy or small and scarious. Fruiting-calyx ovoid, dry 12. *K. capitata*.

Leaves ovate or orbicular. Bracts very broad, as long as the calyx. Fruiting-calyx globular, fleshy 13. *K. pomifera*.

Ovary 5-celled. Flowers rather long. Western species.

Leaves obovate, silky. Flowers polygamous; males in a loose terminal cluster or short raceme, the perfect ones often solitary . . . 14. *K. sericea*.

Leaves linear-oblong or lanceolate. Flowers in a dense spike below the end of the branch, with long crimson stamens 15. *K. Baxteri*.

K. trinervia, Turcz. in Bull. Mosc. 1862, ii. 326, said to be from Norfolk Island, 'Reliquiæ Cunninghamianæ,' n. 110, must be founded on some mistake. Cunningham's Norfolk Island collection contains no such plant. The collection sold some years since with "Norfolk Island" printed labels, consisted chiefly of common N.S. Wales species.

SECTION I. **EUKUNZEA**.—Ovules not numerous (2 to 12) in each cell, pendulous, in 2 rows on an oblong or peltate placenta.

1. **K. micrantha**, Schau. in Pl. Preiss. i. 125. Apparently small and erect, quite glabrous or with a very slight pubescence about the young flower-heads. Leaves linear or linear-cuneate, erect or slightly recurved, flat, rigid, obtuse, 1-nerved, 2 to 4 lines long. Flowers numerous, in dense, terminal, globular heads. Bracts broadly ovate-acuminate or rhomboidal, scarious or almost coriaceous, nearly as long as the calyx-tube; bracteoles narrow. Calyx-tube about 2 lines long, but much narrower than in most species, especially at the base, and oblique or incurved, usually glabrous; lobes very small, ovate, obtuse. Petals nearly 1 line long. Stamens not numerous, from a little longer than the petals to twice as long. Ovary 2- or 3-celled, with 2 to 4 pendulous ovules in each cell; stigma small.

W. Australia, Drummond, 1st Coll., also 5th Coll. n. 139 or 159; Preiss; Salt River, Maxwell (in Herb. Oldfield).

The species was originally described by Schauer, from specimens with the flowers so young that he had afterwards misgivings about it and suppressed it (Pl. Preiss. ii. 223), but Drummond's specimens show it to be a very distinct species, quite different from *K. micromera*, Schau., with which Preiss's specimens had been mixed, and which it resembles in foliage. In this respect it resembles also the var. *præstans* of *K. recurva*, but the flowers are different.

2. **K. ericalyx**, F. Muell. Fragm. ii. 28. Apparently a small heath-like plant, glabrous except the inflorescence. Leaves crowded, linear, semiterete, channelled above, obtuse, about 2 lines long. Flowers few, in terminal heads or sometimes solitary. Bracts ovate or rhomboidal, mucronate or acuminate; bracteoles narrow. Calyx-tube nearly 2 lines long, ovoid, densely clothed with white woolly hairs; lobes short, ovoid, obtuse. Petals deep

pink, about $1\frac{1}{2}$ lines diameter. Stamens 12 to 16, from a little longer than the petals to twice as long. Ovary 2-celled, with 2 collateral pendulous ovules in each cell; stigma small, not capitate.

W. Australia. Middle Mount Barren, *Maxwell*, a single small specimen in Herb. F. Muell.

3. **K. Muelleri**, *Benth.* A low heath-like bushy shrub, more or less pubescent. Leaves scattered, occasionally opposite, clustered and almost decussate on the smaller branchlets, linear, concave or semiterete, mostly 2 to 3 lines long. Flowers (yellow?) sessile, in small, dense, softly villous heads at or just below the ends of the branches. Inner bracts narrow, scarious; bracteoles ovate-lanceolate, acute, keeled, nearly as long as the calyx-tube. Calyx-tube about $1\frac{1}{2}$ lines long; lobes from broadly ovate to lanceolate-triangular, shorter than the petals. Petals about 1 line diameter. Stamens very numerous, in more than one series, not exceeding twice the length of the petals. Ovary 2- or 3-celled, with about 8 ovules in each cell, horizontal or reflexed, on a peltate placenta; stigma small, but capitate. Fruiting-calyx scarcely enlarged. Seeds pendulous, but not seen perfect.—*K. ericifolia*, F. Muell. in Trans. Vict. Inst. 1855, 123, not of Reichb.

Victoria. Haidinger Range, Mount Wellington, and Munyong mountains, at an elevation of 4 to 6000 ft., *F. Mueller*.

4. **K. ericifolia**, *Reichb. Consp.* 175. A tall shrub with virgate branches, more or less pubescent or densely hirsute, as well as the leaves, or rarely nearly glabrous. Leaves linear, spreading or recurved, flat, concave or almost triquetrous, mostly mucronate-acute, rather rigid, 2 to 4 lines long. Flowers (greenish-yellow) in dense globular heads, the rhachis woolly-villous. Bracts obovoid or rhomboidal, acute or almost obtuse, from half as long to nearly as long as the calyx, deciduous; bracteoles smaller. Calyx-tube obovoid or turbinate, glabrous or pubescent, nearly 2 lines long; lobes short, erect. Petals rather above 1 line diameter. Stamens numerous, in several series, 2 or 3 times as long as the petals. Ovary 5-celled, with about 10 ovules in each cell, in 2 rows. Fruiting-calyx considerably enlarged. Seeds black, obovoid-oblong, pendulous; cotyledons twice as long as the radicle.—*Metrosideros ericifolia*, Sm. in Rees, Cyclop. xxiii.; DC. Prod. iii. 225; *Kunzea vestita*, Schau. in Pl. Preiss. i. 126. ii. 224.

W. Australia. King George's Sound, *R. Brown*, and adjoining districts, chiefly in low wet places near the sea, *Menzies*, *Drummond*, 1st Coll. n. 131; *Preiss*, n. 272, and many others.

Var. *glabrior*. Generally less villous and sometimes nearly glabrous.—Swan River, *Preiss*, n. 271; Gordon river, *Maxwell*.—*Metrosideros propinqua*, Endl. in Hueg. Enum. 50; *Kunzea propinqua*, Schau. in Pl. Preiss. i. 126.

5. **K. Preissiana**, *Schau. in Pl. Preiss.* i. 125. A rather rigid much-branched shrub, from 1 to 3 or 4 ft. high, the young shoots and inflorescence more or less villous, the older leaves nearly glabrous. Leaves oblanceolate or linear-oblong, obtuse, rigid, flat, or slightly concave, 2 to 4 lines long. Flower-heads globular, not very large. Bracts broad, obtuse or shortly acuminate, not exceeding the calyx-tube; bracteoles smaller and narrow. Calyx-tube softly villous or silky, about $1\frac{1}{2}$ lines long; lobes short, ovate, obtuse or scarcely acute. Petals pink, rather above 1 line diameter. Stamens not very

numerous, from a little longer than the petals to nearly twice as long. Ovary short, 5-celled, with 8 to 12 ovules in two rows in each cell, or sometimes 1 or 2 of the cells abortive; stigma small.

W. Australia, *Drummond*, 1st Coll., *Preiss*, n. 276, *Maxwell*, *Sandford*; Kalgan river, *Oldfield*. The species is, as it were, intermediate between *K. ericifolia* and *K. recurva*.

Var. *villiceps*. Whole plant villous, with soft spreading hairs. Flowers rather larger, the heads densely villous.—Sandy places, Gordon river, *Preiss*, n. 275; Stirling Range, *Oldfield*, also *Drummond*, 3rd Coll. n. 39 or 49.—*K. villiceps*, *Schau.* in *Pl. Preiss.* i. 125.

6. **K. recurva**, *Schau.* in *Pl. Preiss.* i. 125. A tall shrub with rigid branches, the young shoots slightly pubescent, otherwise glabrous. Leaves obovate or almost spatulate, spreading or recurved, narrowed at the base, obtuse or with a minute recurved point, mostly 2 to 3 lines long. Flower-heads dense, globular, the rhachis usually woolly. Bracts very broad, rigid and dry, with scarios margins, as long as the calyx, but very deciduous; bracteoles smaller. Calyx-tube obovoid, about 2 lines long in the larger forms, glabrous or nearly so; lobes ovate, obtuse. Petals above 1 line diameter. Stamens numerous, in several series, 2 or 3 times as long as the petals. Ovary 5-celled, with 10 to 15 ovules in 2 rows in each cell; stigma scarcely dilated. Fruiting-calyx enlarged, often urceolate.

W. Australia. Swan River, *Drummond*, 1st Coll.; Darling Range, *Preiss*, n. 290; also *Drummond*, n. 24, and 5th Coll. n. 136 and 137.

Var. *melaleucoides*, F. Muell. Leaves smaller, nearly orbicular, sessile. Flowers smaller, deeper coloured. Bracts smaller.—Tone and Vasse rivers, *Oldfield*; Bald Island and Cape Riche, *Maxwell*.

Var. *præstans*. More glabrous. Leaves narrower, but varying from almost obovate, and 2 lines long to linear-cuneate and 5 lines long.—*K. præstans*, *Schau.* in *Pl. Preiss.* i. 124.—*Drummond*, 1st Coll. and 5th Coll. n. 138.

Metrosideros sororia, Endl. in *Flueg. Enum.* 49, referred by *Schauer* to his *Melaleuca Endlicheriana* (*M. seriata*, Lindl., var.), seems, from the character given, to be the same as *Kunzea recurva*.

7. **K. micromera**, *Schau.* in *Pl. Preiss.* ii. 223. A rigid shrub, attaining 2 to 4 ft., with spreading branches, but often quite low and diffuse, glabrous, except the inflorescence. Leaves narrow-obovate or oblong, thick, very obtuse, 1 to 1½ or nearly 2 lines long. Flower-heads numerous, but small and often few-flowered. Bracts obovate, shorter than the calyx-tube, scarios, ciliate villous or nearly glabrous. Calyx-tube scarcely above 1 line long, broadly ovoid or almost globular, softly villous or nearly glabrous; lobes ovate, about as long as the tube. Petals about 1 line diameter. Stamens not numerous, from rather longer than the petals to nearly twice as long. Ovary 5-celled, with 8 to 10 ovules, in 2 rows, in each cell; stigma small but capitate.

W. Australia, *Drummond*, 5th Coll. n. 135, *Preiss* (a fragment in *Herb. Sonder*); Kalgan river, *Oldfield*; Gardiner ranges, *Maxwell*.

8. **K. pauciflora**, *Schau.* in *Pl. Preiss.* i. 124. A bushy shrub, of 2 or 3 ft., with numerous erect branchlets, glabrous or nearly so. Leaves rather crowded, and in some specimens many of them opposite, erect, narrow-linear, semiterete, obtuse or scarcely mucronate, 2 to 4 lines long. Flowers large for the plant, sessile in the upper axils, sometimes solitary, but usually 2 or 3, rarely up to 6 together, in a terminal head. Bracts broad, scarios, shorter than

the calyx-tube, either with a short or a long leaf-like point. Calyx-tube ovoid, about 2 lines long, glabrous; lobes lanceolate, acute or acuminate, often half as long as the tube. Petals deep pink, fully 2 lines long. Stamens numerous, some scarcely exceeding the petals, others twice as long. Ovary 5-celled, with 8 to 10 ovules in 2 rows in each cell; stigma capitate. Fruiting-calyx slightly enlarged, urceolate.

W. Australia. Gravelly base of the Konkoberup hills towards Cape Riche, *Preiss*, n. 259; *Drummond* (*Ath Coll.*?) n. 56, 5th *Coll.* n. 134; *Maxwell*; base of Mount Bland, *Marwell*.

SECTION II. SALISIA.—Ovules very numerous in each cell, covering the surface of a peltate placenta.

9. **K. parvifolia**, *Schau. in Pl. Preiss.* i. 124. A shrub, of several ft., with slender divaricate branches and numerous branchlets, softly pubescent when young. Leaves oblong or almost linear, erect or recurved at the end, concave, obtuse or mucronate, rarely above 1 line long. Flowers small, few in terminal heads, becoming lateral by the elongation of the shoot. Bracts lanceolate, acute. Petals and stamens not seen. Fruiting-calyx nearly glo-bular, about $1\frac{1}{2}$ lines diameter, crowned by the short acute teeth. Capsule adnate to about half the calyx-tube, but very convex, so as nearly to fill it, 3-celled, the thick peltate placentas covered with the scars of very numerous ovules. Seeds not seen.

N. S. Wales. Argyle County, *Huegel* (specimen not seen), near Berrima, Illawarra, *M'Arthur*.

Victoria. Buffalo Range, *F. Mueller*.

10. **K. peduncularis**, *F. Muell. in Trans. Vict. Inst.* 1855, 124, and in *Hook. Kew Journ.* viii. 67. A tall shrub or sometimes a small tree, the branchlets virgate, glabrous or very slightly silky when young. Leaves linear or linear-lanceolate, concave, acute, mostly about $\frac{1}{2}$ in., but varying from $\frac{1}{2}$ to nearly 1 in. long. Flowers small, shortly pedicellate, in the upper axils, forming either short terminal leafy corymbs, or long interrupted leafy racemes. Bracteoles scarious, but falling off from the very young bud. Calyx glabrous, about $1\frac{1}{2}$ lines long; lobes ovate, with scarious margins. Petals obovate, not exceeding 1 line. Stamens above 30, in a single series, from half as long again to twice as long as the petals. Ovary about half as long as the calyx-tube, 3-celled or very rarely 4-celled, with numerous ovules in each cell on a peltate placenta. Fruiting-calyx slightly enlarged. Seeds usually only one perfect in each cell.—*Bæckeia phyllicoides*, *A. Cunn.*; *Schau. in Walp. Rep.* ii. 921; *Kunzea leptospermoides*, *F. Muell.*; *Miq. in Ned. Kruidk. Arch.* iv. 146.

N. S. Wales. Banks of rivers, Argyle County, *A. Cunningham*.

Victoria. Snowy River and Macalister river, mountains near Brighton, *F. Mueller*.

Var. *brachyandra*, *F. Muell.* Stamens shorter, but still exceeding the petals. Leaves oblong-linear. Summits of the White Rock Mountains, Mount Aberdeen, and sources of the Genoa river, *F. Mueller*.

11. **K. corifolia**, *Reichb. Consp.* 175. A tall shrub, glabrous or the young shoots pubescent. Leaves usually crowded on the branchlets or clustered in the axils, linear or linear-lanceolate, rigid, concave, obtuse or mucronate-acute, $\frac{1}{4}$ to $\frac{1}{2}$ in. long. Flowers white, nearly sessile, solitary in the upper axils of very short leafy branchlets, which are often very numerous

along the main branches. Bracts none besides the floral leaves. Calyx usually glabrous; lobes small, ovate or ovate-lanceolate. Petals rarely above 1 line diameter. Stamens numerous, in 2 or 3 irregular series, at least twice as long as the petals. Ovary 3-celled, rarely 4-celled, with very numerous ovules in each cell covering a broad peltate placenta; stigma capitate or peltate. Fruiting-calyx more or less enlarged, with erect persistent lobes.—Schau. in Pl. Preiss. i. 124; Hook. f. Fl. Tasm. i. 130; *Metrosideros corifolia*, Vent. Jard. Malm. t. 46; DC. Prod. iii. 225; *Leptospermum ambiguum*, Sm. in Trans. Linn. Soc. iii. 264, and Exot. Bot. t. 59; Lodd. Bot. Cab. t. 1998.

N. S. Wales. Port Jackson, *R. Brown*, *Sieber*, n. 324.

Victoria. Maritime rocks, Wilson's Promontory, Genoa river, *F. Mueller*; Glenny islands, *Wilhelmi*.

Tasmania. Islands of Bass's Straits, *R. Brown*; granite rocks, Gun-carriage and Flinders islands, *Backhouse*, *Gunn*; Schouten Island, *Herb F. Mueller*.

In the Port Jackson specimens the leaves are more slender than in the Tasmanian ones, which have also slightly tomentose calyxes and constitute the *K. pelagia*, *F. Muell.*; *Miq.* in Ned. Kruidk. Arch. iv. 145.

12. **K. capitata**, *Reichb. Consp.* 175. Branches and young shoots more or less villous with long soft hairs. Leaves obovate oblong or linear-cuneate, erect and recurved at the end, rigid, concave, obtuse or with short recurved points, mostly 2 to 4 lines long, 1- or 3-nerved. Flowers in small terminal heads, often becoming lateral by the development of the axis, the floral leaves herbaceous, but usually smaller than the others, or the inner ones reduced to scarious bracts; bracteoles cuneate, scarious, shorter than the calyx-tube. Calyx-tube rather narrow, softly villous, about 2 lines long; lobes short, lanceolate, acute. Petals scarcely exceeding the calyx-lobes. Stamens 2 or 3 times as long as the petals. Ovary 3, or rarely 4-celled, with very numerous ovules in each cell, covering a broad peltate placenta. Fruiting-calyx lengthened sometimes to 3 lines. Seeds ovoid, incurved; testa thin; cotyledons broad and rather thick, tapering into a very short radicle.—*Metrosideros capitata*, Sm. in Trans. Linn. Soc. iii. 273; DC. Prod. iii. 225; *Callistemon (Callistemma) capitatus*, *Reichb. Icon. Exot.* i. 59. t. 84; *Mela-leuca eriocephala*, *Sieb.* in *Spreng. Syst.* iii. 336; *Kunzea Schaueri*, *Lehm.*; Schau. in Pl. Preiss. i. 124; *K. hirsuta*, *Turcz.* in *Bull. Mosc.* 1862, ii. 326 (from the character given).

N. S. Wales. Port Jackson to the Blue Mountains, *R. Brown*, *Sieber*, n. 322, *Fl. Mirt.* n. 609, and others; northward to Hastings river, *Fraser*, *Beckler*.

Var. (?) *glabrescens*. Branches slender, divaricate. Leaves 2 to 3 lines long. Flowers few in the head. Calyx glabrous or nearly so.—Between Port Jackson and Sydney, *R. Brown*. This variety almost connects the species with *K. parvifolia*.

13. **K. pomifera**, *F. Muell. in Trans. Vict. Inst.* 1855, 124, and in *Hook. Kew Journ.* viii. 66. A rigid prostrate shrub, glabrous or the young shoots slightly pubescent. Leaves ovate, from nearly orbicular and almost cordate, to narrow and acute at the base, rigid, spreading, obtuse or recurved-pointed, mostly 2 to 3 lines long, or 4 lines on luxuriant shoots. Flowers white or yellowish, sessile, not numerous, but forming dense terminal heads, and becoming lateral by the elongation of the shoot. Bracts very broadly orbicular, pubescent, coloured, as long as the calyx-tube, deciduous. Calyx-tube ovoid, silky-pubescent, $1\frac{1}{2}$ to 2 lines long at the time of flowering; lobes small.

Petals scarcely 1 line diameter. Stamens numerous, 3 or 4 times as long as the petals. Ovary very short, 3-celled, with very numerous ovules in each cell, covering a broad peltate placenta. Fruiting-calyx enlarged and succulent, forming a blue berry of 3 to 4 lines diameter, crowned by the lobes. Capsule small, in the base of the calyx. Seeds ovate; testa almost crustaceous; cotyledons thick, ovate, with a very short radicle.

Victoria. Sandhills, on Lakes Nepo and Hindmarsh, Wimmera, *Dallachy*; seabeach, Portland Bay, *Allitt*.

S. Australia. Sandy shore and rocks of St. Vincent's Gulf and Rivoli Bay, *F. Mueller*.

14. **K. sericea**, *Turcz. in Bull. Mosc.* 1847, i. 162. A tall shrub with very rigid tortuose or divaricate branches, tomentose when young. Leaves obovate, crowded on the short branchlets, very obtuse or minutely mucronate, $\frac{1}{2}$ to $\frac{1}{2}$ in. long, or on luxuriant branches narrower almost spatulate and $\frac{3}{4}$ in. long, very rigid and silvery-white on both sides even when old. Flowers large, polygamous, on very short pedicels, the perfect ones often (perhaps always) solitary, the males several together in a terminal cluster or very short raceme. Bracts membranous, broad, concave, very deciduous. Calyx broadly campanulate, 3 to 4 lines diameter; lobes lanceolate, thick, tomentose, shorter than the tube. Petals 2 to $2\frac{1}{2}$ lines diameter. Ovary adnate to the base of the calyx, rudimentary or abortive in the male flowers, 5- or 6-celled in the perfect ones, with very numerous ovules in each cell on a peltate placenta; stigma small, slightly capitate. Capsule filling the slightly enlarged calyx-tube, but not projecting beyond it. Seeds angular, cuneate; testa thin; cotyledons obovate, plano-convex, much longer than the radicle. — *Leptospermum sericeum*, *Labill. Pl. Nov. Holl.* ii. 9. t. 147; *Salisia pulchella*, *Lindl. Swan Riv. App.* 10.

W. Australia. Lucky Bay, *R. Brown*; eastward of King George's Sound, *Baxter, Drummond*, 5th Coll. *Suppl. n.* 27; Swan River, *Fraser, Drummond*, 1st Coll. also 3rd Coll. *n.* 40 (4th Coll. ?) *n.* 54.

Schauc appears to have ascertained that *Leptospermum sericeum* of Labillardière was from the "Terre van Leeuwin," not from Tasmania; but he refers to it specimens of Preiss's which evidently belong to *Leptospermum erubescens*. Labillardière's own specimen in Herb. R. Brown, in fruit only, and exactly corresponding with the fruiting specimens figured, is certainly *K. sericea*, but Labillardière's description of the flower refers to a true *Leptospermum*, taken, perhaps, from some Tasmanian specimen of *L. lanigerum*.

15. **K. Baxteri**, *Schau. in Pl. Preiss.* i. 123. A rigid shrub of several feet, minutely silky-pubescent, or the foliage at length glabrous. Leaves crowded, linear-oblong or lanceolate, flat, obtuse or somewhat acute, $\frac{1}{4}$ to $\frac{1}{2}$ in. long, usually bordered by short dense silky hairs. Flowers large, like those of a *Callistemon*, in dense terminal oblong cylindrical spikes of 1 to 2 in., the rhachis and calyxes pubescent or rarely glabrous. Calyx-tube broadly campanulate, $2\frac{1}{2}$ to 3 lines long; lobes leafy, lanceolate or linear, erect, nearly as long as the tube. Petals of a rich red, not exceeding the calyx-lobes. Stamens crimson, $\frac{1}{2}$ to $\frac{3}{4}$ or sometimes nearly 1 in. long; anthers yellow. Ovary concave at the top, glabrous or slightly silky, 5-celled, with very numerous ovules in each cell on a small peltate placenta; stigma slightly clavate. Fruiting-calyx thick and somewhat enlarged, the lobes persistent and erect, capsule about half as long as the tube, wholly adnate. — *Pentagonaster Baxteri*,

Klotzsch in Otto and Dietr. Allg. Gartenzeit. iv. 113 (according to Schauer); *Callistemon macrostachyum*, Lindl. Bot. Reg. 1838, t. 7; *Callistemon Hainesii*, F. Muell. Fragm. iii. 153.

W. Australia. To the eastward of King George's Sound, *Barter*; between Cape Arid and Cape Le Grand, *Marwell*. This species has the somewhat ascending ovules, inflorescence, and long richly-coloured stamens of *Callistemon*, but the calyx and ovary are much more those of *Kunzea*, thus closely connecting the two genera.

20. CALLISTEMON, R. Br.

Calyx-tube ovoid, campanulate or urceolate, adnate to the ovary at the base, the free part erect or contracted; lobes 5, imbricate, more or less scarious, deciduous. Petals 5, orbicular, spreading, longer than the calyx-lobes. Stamens much longer than the petals, indefinite, usually in several series, free or very rarely collected in clusters or very shortly united opposite the petals, or all very shortly united in a continuous ring; anthers versatile, the cells parallel, opening longitudinally. Ovary villous on the top, usually convex, with a slight depression round the style, 3- or 4-celled, with very numerous ovules in each cell, horizontal or ascending and covering a peltate placenta; style filiform with a small terminal often scarcely conspicuous stigma. Fruiting-calyx more or less hardened and enlarged, with a truncate orifice; capsule enclosed in and more or less adnate to the calyx, opening loculicidally. Seeds linear or linear-cuneate, testa thin; cotyledons plano-convex, longer than the radicle.—Tall shrubs or small trees. Leaves scattered, terete, linear or lanceolate, entire, coriaceous, nerveless or with a prominent midrib and nerve-like margins and pinnate veins. Flowers showy, pale yellow or crimson, in dense oblong or cylindrical spikes, at first terminal, but the axis very soon growing out into a leafy shoot, the lower leaves of the new shoot usually reduced to dry very deciduous scales, each flower closely sessile or slightly immersed in the woody rachis. Bracts none or dry and deciduous, rarely here and there more persistent and leaf-like. Stamens in most species $\frac{1}{2}$ to 1 in. long or even more.

The genus is confined to Australia. As originally observed by R. Brown, it passes gradually into *Melaleuca*, with which F. Mueller proposes to reunite it, the *C. speciosum* being, as it were, intermediate between the two. On the other hand, it is as closely connected with *Kunzea* through *K. Baxteri*, and that genus again passes into *Leptospermum*. Yet the great majority of species of each of the four groups are separated by characters so marked and prominent that it appears more convenient to retain the four genera as generally admitted.

The species of *Callistemon*, as thus limited, have a remarkable similarity in their floral characters, scarcely differing but in the breadth and consistence of their leaves and in the length and colour of the stamens. They might, indeed, almost be considered as varieties of one species.

Leaves lanceolate.

Stamens red.

Western species.

Leaves thick, penniveined. Flower-spikes dense, large, usually villous. Stamens obscurely or very shortly 5-adelphous

1. *C. speciosus*.

Leaves thick but obscurely veined. Flower-spikes not very dense, usually glabrous. Stamens not clustered

2. *C. phæniceus*.





- Eastern species. Leaves usually pennaiveined. Spikes glabrous or pubescent.
- Spikes rather loose. Anthers dark coloured 3. *C. lanceolatus*.
- Spikes short dense. Anthers usually yellow 4. *C. coccineus*.
- Stamens greenish-yellow. Eastern species. Spikes usually glabrous 5. *C. salignus*.
- Leaves linear. Eastern species.
- Stamens red.
- Leaves flat, pennaiveined 6. *C. rigidus*.
- Leaves concave, nerveless or 1-nerved 7. *C. linearis*.
- Stamens yellow or greenish 5. *C. salignus*.
- Leaves linear-subulate, terete. Eastern species.
- Leaves mostly above 2 in. long. Flowers large. Stamens above $\frac{1}{2}$ in.
- Leaves channelled above. Stamens yellowish-green, glabrous 8. *C. pinifolius*.
- Leaves quite terete. Stamens red, filaments hairy 9. *C. teretifolius*.
- Leaves under $1\frac{1}{2}$ in. long, spreading, pungent. Stamens red, scarcely exceeding 4 lines 10. *C. brachyandrus*.

C. Sieberi, DC. Prod. iii. 223, was described from Sieber's specimens, n. 637, which I have not seen. In foliage the short character agrees with *C. linearis*, but the species is placed amongst those with yellowish stamens, and these are said to be only a little longer than the petals, which would remove the plant from all the species known to me.

1. ***C. speciosus*, DC. Prod. iii. 224.** A tall bushy shrub or small tree, glabrous except the inflorescence, or the young shoots silky-hairy. Leaves narrow-lanceolate, obtuse or with a callous point, narrowed at the base, mostly 3 to 4 in. long, pennaiveined, with a prominent midrib and nerve-like margins as in *C. lanceolatus*, but much thicker and more rigid. Flowers large, of a rich red, in dense cylindrical spikes of 3 to 5 or even 6 in., the rachis and calyx usually pubescent or hirsute. Calyx-tube often 3 lines long; lobes 1 to $1\frac{1}{2}$ lines diameter. Petals 2 to 3 lines. Stamens usually about 1 in. long, of a rich red, more or less distinctly collected in clusters or very shortly united in bundles opposite the petals. Fruiting-calyx globular, about 3 lines diameter, with a broad open truncate orifice. Capsule usually considerably shorter.—Schau. in Pl. Preiss. i. 122; *Metrosideros speciosa*, Sims, Bot. Mag. t. 1761; Lodd. Bot. Cab. t. 285; *Metrosideros glauca*, Bonpl. Jard. Malm. 86. t. 34; *Callistemon glaucus*, F. Muell. Fragm. i. 14; *Melaleuca paludosa*, R. Br. in Ait. Hort. Kew. ed. 2. iv. 410; DC. Prod. iii. 212, not of Schlecht.

W. Australia. King George's Sound and adjoining districts, *Baudin's Expedition*, R. Brown, Preiss. n. 351, Drummond, 3rd Coll. n. 62, and others. I have followed De Candolle in preferring Sims's specific name to Bonpland's, for, although the *Pl. Rar. Malm.* bears the date of 1813 on the title page, the later parts were not published till 1816.

2. ***C. phœniceus*, Lindl. Swan Riv. App. 10.** Very closely allied to *C. lanceolatus*. Leaves narrower, 2 to 4 in. long and rarely 3 lines wide, very thick, rigid, with prominent midrib and nerve-like margins, but the pinnate veins usually quite inconspicuous. Flowers large, the spikes not dense and usually glabrous. Stamens of a rich red, about 1 in. long, not at all clustered; anthers dark or rarely light-coloured. Fruiting-calyx more contracted at the orifice than in *C. lanceolatus*.—Schau. in Pl. Preiss. i. 123; F. Muell. Fragm. iv. 53.

W. Australia. Swan River, *Drummond*, 1st Coll., *Preiss*, n. 352, 353; Murchison river, *Oldfield*.

3. ***C. lanceolatus***, *DC. Prod.* iii. 223. Usually a tall shrub, but sometimes said to be low and bushy and at others to attain 30 ft., the young shoots silky or loosely hairy and the inflorescence usually pubescent, otherwise glabrous. Leaves lanceolate, variable in breadth, usually acute and $1\frac{1}{2}$ to 2 in. long but varying from 1 to 3 in., rather rigid, more or less distinctly penniveined, the margins often nerve-like. Flower-spikes 2 to 4 in. long, not very dense, the rachis and calyxes pubescent hirsute or rarely glabrous; occasionally, especially in cultivation, the flowers are more distant and a few of them in the axils of leaf-like bracts. Calyx-tube usually about 2 lines long; lobes broad and very obtuse. Petals greenish or reddish, from $1\frac{1}{2}$ to nearly 3 lines diameter. Stamens red, in some specimens deeply coloured and 1 in. long, in others much paler, more slender and scarcely above $\frac{1}{2}$ in., quite free or very shortly united in a ring at the base. Fruiting-calyx not much enlarged, the truncate orifice usually open.—*F. Muell. Fragm.* iv. 53; *Metrosideros lanceolata*, *Sm.* in *Trans. Linn. Soc.* iii. 272; *M. citrina*, *Curt. Bot. Mag.* t. 260; *M. lophantha*, *Vent. Jard. Cels.* t. 69; *M. marginata*, *Cav. Ic.* iv. 18. t. 332; *Callistemon marginatus*, *DC. Prod.* iii. 224; *C. scaber*, *Lodd. Bot. Cab. t.* 1288; *M. rugulosa*, *Sieb. Pl. Exs. n.* 321, but perhaps not of *Willd.*; *M. semperflorens*, *Lodd. Bot. Cab. t.* 523.

Queensland. Shoalwater Bay, *R. Brown*; Brisbane river, Moreton Bay, *Fraser*, *W. Hill*, and others; Burdekin river, *F. Mueller*; Bowen river, *Bowman*; Edgcombe Bay, *Dallachy*; Coudamine river and other stations in the interior, *Leichhardt*; Pine river, *Fitzalan* (with the stamens united at the base).

N. S. Wales. Port Jackson to the Blue Mountains, *R. Brown*, *Sieber*, n. 321, and others; northward to Hastings river, *Fraser*, *Beckler*; New England, *C. Stuart*; southward to Bango, *McArthur*.

Victoria. Eastern Gipps' Land, *F. Mueller*.

4. ***C. coccineus***, *F. Muell. Fragm.* i. 13. Very closely allied to *C. lanceolatus* and *C. salignus*. Leaves nearly of the var. *hebestachyus* of the latter, but more rigid, almost pungent, 1 to $1\frac{1}{2}$ in. long, the midrib and nerve-like margins prominent, the pinnate veins inconspicuous, the under surface often and sometimes both surfaces glandular-scabrous. Flowers rather large, the spikes not very dense, the rachis and calyxes pubescent or glabrous. Calyx-tube 2 to $2\frac{1}{2}$ lines long; lobes short and broad. Petals 2 to 3 lines diameter. Stamens $\frac{3}{4}$ to 1 in. long; red with yellow anthers, numerous, quite free. Fruiting spikes dense, the calyx more contracted at the orifice than in *C. lanceolata*.—*C. rugulosus*, *Miq.* in *Ned. Kruidk. Arch.* iv. 141, but scarcely of *DC.*

S. Australia. From Spencer's and St. Vincent's Gulf to the Murray and Encounter Bay and in Kangaroo Island, *Behr*, *F. Mueller*, and others.

5. ***C. salignus***, *DC. Prod.* iii. 223. A tall shrub or small tree attaining sometimes 30 to 40 ft., and often undistinguishable in foliage and inflorescence from *C. lanceolatus*, the leaves are however usually more acute, more distinctly penniveined, and the nerve-like margins often more prominent; in some forms, however, the venation is, on the contrary, more obscure. Spikes in the common form glabrous, more rarely the rachis and calyxes pubescent or villous. Flowers generally rather smaller than in *C. lanceolatus*, the



calyx-lobes more ovate. Stamens pale yellow or rarely light pink, usually rather under $\frac{1}{2}$ in. long. Fruiting-calyx and capsule as in *C. lanceolatus*.—Hook. f. Fl. Tasm. i. 131; F. Muell. Fragm. iv. 54; *Metrosideros saligna*, Sm. in Trans. Linn. Soc. iii. 272; Vent. Jard. Cels. t. 70; Bonpl. Pl. Malm. t. 4; Bot. Mag. t. 1821; *Metrosideros pallida*, Bonpl. Pl. Malm. 101. t. 41; *Callistemon pallidus*, DC. Prod. iii. 223; *C. lophanthus*, Lodd. Bot. Cab. t. 1302.

Queensland. Brisbane river, Moreton Bay, *F. Mueller*.

N. S. Wales. Port Jackson to the Blue Mountains, *R. Brown*, *Sieber*, n. 320, and others; Hastings river, *Beckler*.

Victoria. Common on the Yarra, Ovens, Goulburn, and other rivers, *F. Mueller*, and others.

Tasmania. Derwent river, etc., *R. Brown*; abundant on river banks in all parts of the island. *J. D. Hooker*.

S. Australia. River banks and dry beds of streams towards St. Vincent's Gulf, *Behr*, *F. Mueller*, and others.

Var. australis. Leaves usually smaller (1 to 2 in.), calyx and rhachis glabrous.—*Melaleuca paludosa*, Schlecht. Linnæa, xx. 653, not of *R. Br.*; *C. paludosus*, *F. Muell.* Fragm. i. 14. To this belong the majority of the Victorian, Tasmanian, and S. Australian specimens.

Var. hebestachyus. Leaves rather small. Calyx and rhachis pubescent or villous.—*C. lophanthus*, Sweet, Fl. Austral. t. 29, but not the syn. of Ventenat quoted.—Victoria and Tasmania. *C. leptostachyus*, Sweet, Fl. Austral. under n. 29, is probably a weak form of the same variety.

Var. angustifolia. Leaves linear-lanceolate, very rigid, almost pungent, 1 to 2 in. long. Flowers glabrous.—N. W. interior of N. S. Wales, *A. Cunningham*; New England, *C. Stuart*.

Var. viridiflora. *F. Muell.* Fragm. iv. 53. Leaves rarely exceeding 1 in., narrow-lanceolate, crowded, very rigid, the veins obscure. Flowers rather large, glabrous, the stamens rather above $\frac{1}{2}$ in. long, greenish-yellow.—*Metrosideros viridiflora*, Sims, Bot. Mag. t. 2602; *Callistemon viridiflorus*, DC. Prod. iii. 223; Hook. f. Fl. Tasm. i. 131.—Tasmania, often ascending to 4000 ft., *J. D. Hooker*; Gipps' Land, *F. Mueller*.

Var. Sieberi. *F. Muell.* l. c. Leaves almost linear, crowded, linear, $\frac{1}{2}$ to $\frac{3}{4}$ in. long. Flowers small, in short spikes.—*C. Sieberi*, DC. Prod. iii. 223, according to *F. Mueller*, but scarcely agreeing with the character given.—Shoalhaven in N. S. Wales, *Woolfs*; Australian Alps, *F. Mueller*.

Melaleuca pithyoides, *F. Muell.* Herb., from Buffalo Range, enumerated doubtfully under *Callistemon* by *Miq.* in Ned. Kruidk. Arch. iv. 142, must remain uncertain until the flowers are known. *F. Mueller*, Fragm. iv. 54, refers it to *C. saligna*, but the leaves are semiterete and pungent as in *Melaleuca nodosa* and *M. pungens*; the fruits, which may be those of a *Melaleuca* or of a *Callistemon*, form a dense cylindrical spike of about 1 in.

6. C. rigidus, R. Br. in Bot. Reg. t. 393. Very near *C. lanceolatus*, with the same habit, inflorescence and flowers. Leaves linear or very narrowly linear-lanceolate, flat, rigid, acute and almost pungent-pointed, pinniveined with the midrib and nerve-like margins prominent, 2 to 5 in. long, and rarely above 2 lines wide. Flowers at least as large as in *C. lanceolatus*, in a dense spike, the rhachis and calyxes pubescent or villous. Stamens often above 1 in. long, red with dark coloured anthers. Fruiting-calyx truncate with a thick open orifice exceeding the capsule.—DC. Prod. iii. 223,

N. S. Wales. Lane Cove, *R. Brown*. The specimens in other herbaria are all cultivated. Intermediate between *C. lanceolatus* and *C. linearis*. *F. Mueller* is disposed (Fragm. iv. 54), and perhaps correctly, to unite it with the latter. To me, however, it appears to be more nearly allied to the former, the leaves being constantly flat. The flower is the same in all three.

C. linearifolius, DC. Prod. iii. 223 (*Metrosideros linearifolia*, Link, Enum. Hort. Botol.

ii. 26) and *C. rugulosus*, DC. l. c. (*Metrosideros rugulosa*, Willd. in Link, l. c. 27; *M. scabra*, Coll. Hort. Ripul. 91; *M. glandulosa*, Desf. Cat. Hort. Par. 407; *M. macropunctata*, Dum. Cours., according to DC. l. c.) are apparently garden varieties further connecting *C. rigidus* with *C. lanceolatus*.

7. ***C. linearis*, DC. Prod. iii. 223.** Considered by F. Mueller as a variety of *C. rigidus*, it differs in the leaves all much narrower; they are quite linear, 2 to 5 in. long, concave or rarely almost flat, obtuse or acute, nerveless or with the midrib scarcely prominent and the lateral veins quite inconspicuous. Flowers large, the rhachis of the spike and calyxes usually pubescent or villous. Stamens about 1 in. long, dark or pale red, or, according to Fraser, sometimes greenish. Fruiting-calyx about 4 lines diameter, more globular and more contracted at the orifice than in *C. lanceolatus* and *C. rigidus*.

N. S. Wales. Port Jackson to the Blue Mountains, *R. Brown*, *Fraser*, *A. and R. Cunningham*, and others. When the leaves are very narrow, the specimens can scarcely be distinguished except in the colour of the stamens from *C. pinifolius*.

8. ***C. pinifolius*, DC. Prod. iii. 223.** A tall shrub, usually quite glabrous, even the inflorescence. Leaves linear-subulate, terete, more or less distinctly channelled above, rigid, obtuse, acute or pungent-pointed, 2 to 4 in. long. Flowers rather large, like those of *C. lanceolatus* except in colour. Stamens $\frac{1}{2}$ to $\frac{3}{4}$ in. long, of a dull yellowish-green including the anthers.—*Metrosideros pinifolia*, Wendl. Collect. i. 53. t. 16; *C. acerosus*, Tausch in Flora, 1836, 411.

N. S. Wales. Port Jackson, *R. Brown*; Paramatta, *Woolfs*; Hunter's River, *A. Cunningham*.

9. ***C. teretifolius*, F. Muell. in Linnæa, xxv. 387.** A spreading shrub of several feet, the young shoots silky, the adult foliage glabrous. Leaves linear-subulate, quite terete and not channelled, rigid, mostly acute, 3 to 4 in. long. Flowers large, in dense spikes, the rhachis and calyxes glabrous or slightly pubescent. Petals fully 2 lines broad. Stamens red or yellow, quite free, $\frac{3}{4}$ in. long; filaments bearded towards the base with long soft hairs. Fruiting-calyx about 4 lines diameter, nearly globular, much contracted at the orifice.

S. Australia. Rocky mountains of Elders Range, *F. Mueller*. Appears to be constantly distinct from *C. pinifolius* in the leaves not sulcate and the hairy filaments.

10. ***C. brachyandrus*, Lindl. in Journ. Hort. Soc. iv. 112.** A tall stiff bushy shrub or small tree, the young shoots softly hairy, and sometimes soft loose spreading hairs persistent on the older branches and foliage. Leaves linear-subulate, terete and channelled above, rigid and pungent-pointed, mostly $\frac{3}{4}$ to $1\frac{1}{2}$ in. long. Spikes loose and interrupted or sometimes dense, rarely 2 in. long, the rhachis and calyxes loosely hairy. Calyx-tube broadly campanulate, 1 to $1\frac{1}{2}$ lines long; lobes broad, ciliate, more or less scarious. Petals about $1\frac{1}{2}$ lines diameter, glabrous or pubescent. Stamens quite free and scarcely above 4 lines long; filaments deep red; anthers yellow or pale.—*F. Muell. Fragm. iv. 52*; *C. arborescens*, *F. Muell. in Linnæa, xxv. 388*; *C. acerosus*, *Miq. in Nederl. Kruidk. Arch. iv. 141*, not of Tausch.

N. S. Wales. Darling river and towards the Barrier Range, *Victorian Expedition*.

Victoria. Murray desert, *F. Mueller.*

S. Australia. On the Murray, *F. Mueller.*

C. pithyoides, Miq. in Nederl. Kruidk. Arch. iv. 142, mentioned above as only known in fruit, if a *Callistemon* at all, appears to be nearer this species than to the *C. salignus*.

21. *LAMARCHEA*, Gaud.

Calyx-tube ovoid-globular, adnate to the ovary at the base, the free part contracted; lobes 5, ovate, leaf-like, deciduous. Petals 5, oblong, spreading. Stamens indefinite, much longer than the petals, united in 5 bundles, distinct above the middle and opposite the petals, but all united, at least to the middle, into a single tube; anthers narrow, versatile, the cells parallel, opening longitudinally. Ovary inferior, slightly convex and densely villous on the top, 3-celled, with numerous ovules in each cell descending from a peltate placenta; style filiform, with a slightly clavate stigma. Fruiting-calyx hardened and enlarged, nearly globular with a truncate orifice. Seeds . . . —A shrub or small tree, with the habit and foliage of *Melaleuca*.

The genus is limited to a single species, differing from *Melaleuca* only in the monadelphous stamens.

1. ***L. hakeæfolia***, *Gaud. in Freyc. Voy.* 484. t. 110. A tall shrub or small tree, glabrous or the young shoots glaucous or hoary. Leaves alternate, oblong-linear or lanceolate, rigid, almost pungent-pointed, narrowed at the base, 3-nerved, 1 to 2 in. long. Flowers large, almost sessile, singly scattered along the old wood. Bracts not seen. Calyx-tube glabrous or minutely pubescent, about 2 lines diameter, leaf-like lobes as long as the tube. Petals about twice as long as the calyx-lobes. Stamens (red?) about 1 in. long, from 9 to 15 in each bundle, the common tube more or less incurved and hairy. Fruiting-calyx closely sessile, hard and very smooth, 4 to 5 lines diameter.

W. Australia. Seashore and sandhills, Sharks' Bay, *Milne, M. Brown.*

22. *MELALEUCA*, Linn.

(*Gymnagathis*, *Schau.*; *Asteromyrtus*, *Schau.*)

Calyx-tube campanulate or urceolate, adnate to the ovary at the base, the free part erect contracted or scarcely dilated; lobes 5, imbricate or open, herbaceous or more or less scarious, and then occasionally irregularly confluent. Petals 5, orbicular, spreading. Stamens indefinite, much longer than the petals, united in 5 distinct bundles opposite the petals; the united part or *claw* usually flattened, from very short and broad to long and linear, the filaments (or free parts) filiform, either pinnately arranged along the margin of the claw, or clustered or digitate at the end, or covering also the inner face; anthers versatile, the cells parallel, opening longitudinally. Ovary enclosed in the calyx-tube, inferior or semi-inferior, the convex summit villous (except in *M. calycina*) with a central depression round the style; 3-celled, with indefinite ovules in each cell, either numerous and closely packed on the outer surface of a peltate placenta or few and ascending on a short peltate or 2-fid placenta; style filiform with a peltate capitate or frequently very small stigma. Capsule enclosed in the enlarged and hardened calyx, crowned by the cup-shaped or annular free part of the tube, the lobes

rarely persistent, opening loculicidally at the top in 3 valves, and occasionally separable from the calyx into 3 cocci. Seeds more or less cuncate, the perfect ones usually few, testa thin; embryo straight or scarcely curved; cotyledons flat, plano-convex or folded and embracing each other, longer than the radicle.—Shrubs or trees. Leaves alternate or in a few species opposite, entire, usually coriaceous, flat concave or semiterete, 1-3- or several nerved, very rarely thinner with recurved margins. Flowers red white or yellow, closely sessile and solitary within each bract or floral leaf, in heads or spikes, or rarely solitary and scattered, the axis of the spike usually growing out during or after the flowering, the fruiting spike forming the base of the new branch. Bracts usually scale-like and often imbricate in the young spike, but usually deciduous long before flowering. Bracteoles usually small and deciduous, or sometimes none.

The genus is probably entirely Australian, for the few supposed species common in the Indian Archipelago appear to be varieties of a single one which is also widely dispersed over tropical and Eastern Australia. It is also, generally speaking, a well-defined group, readily distinguished from *Callistemon* by the 5-adelphous stamens, from *Conothamnus* by the ovules and seeds, and from *Beaufortia* and its allies by the anthers. The only exceptions are one or two species in which the claws of the staminal bundles are so short as to connect the genus with *Callistemon*, of which one species (*C. speciosus*) has the stamens almost or quite 5-adelphous, but single transitional species appear scarcely to justify the union of very large groups otherwise well characterized.

The great similarity of structure throughout the genus prevents the establishing any definite subdivisions, the specific distinctions resting chiefly on habit, foliage, and inflorescence, neither the opposite leaves of some species, nor even the deciduous calyx-rim of the few *Asteromyrti*, having any other character in common to justify their separation as sections. The following series, therefore, although the best I have been able to devise, will be found in many instances to pass gradually one into the other.

SERIES I. *Callistemonæ*.—*Flowers large, red or rarely greenish-yellow, in oblong or cylindrical dense spikes, glabrous or slightly pubescent, lateral on the old wood or forming the base of leafy branches. Calyx broad at the base. Stamens above $\frac{1}{2}$ in. long (not exceeding $\frac{1}{2}$ in. in any other series).*

Leaves alternate.

Leaves lanceolate, 1 to $1\frac{1}{2}$ in. long. Claws of the staminal bundles long

1. *M. longicoma*.

Leaves lanceolate, 3 to 4 in. long. Flowers large in a long spike. Claws of the staminal bundles very short

Callistemon speciosus.

Leaves linear or semiterete, erect or scarcely spreading, mostly about $\frac{1}{2}$ in. long. Claws of the staminal bundles short.

Leaves flat or concave, acute

2. *M. lateritia*.

Leaves semiterete or slightly flattened, obtuse

3. *M. calothamnoides*.

Leaves very spreading, all under $\frac{1}{2}$ in. long.

Leaves linear or linear-lanceolate, acute, under $\frac{1}{4}$ in. long.

Staminal claws long

4. *M. bleriaefolia*.

Leaves ovate-lanceolate or obloug, obtuse, 3 to 5 lines long.

Staminal claws short

5. *M. diosmifolia*.

Leaves cordate, pungent. Staminal claws long.

17. *M. cardophylla* var.

Leaves opposite. Staminal claws long.

Leaves elliptical-ovate, thick, flat, very obtuse, under $\frac{1}{2}$ in. long

6. *M. elliptica*.

Leaves lanceolate or obloug, with recurved margins and prominent midrib, $\frac{3}{4}$ to $1\frac{1}{2}$ in. long

7. *M. hypericifolia*.

Leaves linear-concave, almost nerveless, $\frac{3}{4}$ to 1 in. long

8. *M. fulgens*.

Leaves linear or linear-lanceolate, $\frac{1}{4}$ to $\frac{1}{2}$ in. long. Flowers scarcely spicate

14. *M. Wilsonii*.

SERIES II. Decussatæ.—*Glabrous bushy shrubs. Leaves opposite, small, flat or concave, nerveless or 1- or 3-nerved. Flowers pink or rarely white, in small heads or clusters along the previous year's stems, or forming short loose spikes at the base of the new shoot already grown out before the flower expands. Rhachis and calyx glabrous.*

In *M. violacea*, the male flowers occasionally, although rarely, form terminal heads.

(The opposite-leaved species of the series *Spicifloræ* differ in the dense, many-flowered spikes and those of the *Capitatæ* in the flowers, whether in heads or solitary, being always at the ends of the branches at the time of expanding.)

Calyx-lobes more or less scarious and deciduous or wearing off when in fruit.

Calyx rounded at the base, never immersed in the rhachis.

Flowers in axillary or lateral clusters, the axis not growing out. Leaves acute, often pungent 9. *M. acuminata*.

Flowers in small heads or clusters, forming the base of lateral leafy shoots.

Flowers few, very small. Stamens 2 or 3 in each bundle 10. *M. leptoclada*.

Flowers rather numerous. Stamens 20 to 30 in each bundle 11. *M. basicephala*.

Calyx attached by the broad base, more or less immersed when in fruit in the thickened rhachis.

Leaves ovate or obovate, rarely 3 lines long 12. *M. gibbosa*.

Leaves oblong-lanceolate or linear, 3 to 6 lines long . . . 13. *M. decussata*.

Calyx-lobes herbaceous, persistent, and thickened when in fruit.

Leaves linear. Filaments clustered at the end of the staminal claws 14. *M. Wilsonii*.

Leaves oblong-lanceolate or almost linear, nearly nerveless.

Filaments pinnate along the upper half of the staminal claws 15. *M. thymifolia*.

Leaves cordate-ovate or ovate-lanceolate, 3-nerved . . . 16. *M. violacea*.

SERIES III. Laterales.—*Leaves alternate. Flowers usually small, in axillary or lateral clusters, the axis very rarely growing out, the rhachis woolly-pubescent or rarely glabrous.*—*Gymnagathis, Schau.*

Leaves many-nerved, pungent-pointed, under $\frac{1}{2}$ in. long.

Leaves cordate-ovate or cordate-lanceolate 17. *M. cardiophylla*.

Leaves lanceolate, narrowed at the base 18. *M. undulata*.

Leaves under $\frac{1}{2}$ in. long, obscurely veined, not pungent.

Leaves flat, ovate, very spreading, under 2 lines long . . . 19. *M. elachophylla*.

Leaves flat, obovate to lanceolate, 2 to 4 lines long . . . 20. *M. lateriflora*.

Leaves linear, semiterete.

Flowers pink, immersed in the fissures of the corky branch . 21. *M. exarata*.

Flowers white. Branches not corky 22. *M. fasciculiflora*.

Leaves above 1 in. long, obscurely veined, not pungent.

Leaves linear-subulate, terete 23. *M. teretifolia*.

Leaves lanceolate, flat. Calyx glabrous 24. *M. alsophila*.

Leaves broadly-oblong to lanceolate, flat, obtuse or scarcely mucronate. Calyx pubescent 25. *M. acacioides*.

SERIES IV. Circumscissæ.—*Leaves alternate (usually above 1 in. long). Flowers in axillary, lateral, or rarely terminal globular heads. Calyx-tube circumsciss at the top of the ovary after flowering, and falling off with the lobes (persistent in the other series). Fruits more or less cohering in a globular head.*—*Asteromyrtus, Schau.*

Leaves obovate-oblong, 3-nerved 26. *M. Baxteri*.

Leaves oblong or lanceolate, 5- or more nerved.

Bracts shorter than the calyx-tube. Heads mostly lateral . . 27. *M. symphyocarpa*.

Outer bracts exceeding the calyx-tube. Heads mostly terminating short leafy branchlets. 28. *M. angustifolia*.

SERIES V. Spicifloræ.—*Leaves alternate or opposite. Flowers either solitary or few*

and distinct, or in more or less interrupted oblong-cylindrical or elongated spikes, sometimes at first terminal but the axis usually growing out before the flowering is over, rarely in dense lateral cylindrical spikes. Rhachis glabrous pubescent or villous.

A few species, such as *M. eleutherostachya*, with rather dense spikes, almost pass into the yellow-flowered *Capitata*, in which the perfect spikes are sometimes elongated.

Leaves mostly opposite.

Leaves lanceolate, about $\frac{1}{2}$ in. long, flat with recurved margins,

1-nerved. Flowers few, small 29. *M. pauciflora*.

Leaves ovate-cordate or ovate-lanceolate, rarely $\frac{1}{2}$ in. long, 5- or

7-nerved. Spikes rather dense. 30. *M. squarrosa*.

Leaves narrow, rarely exceeding $\frac{1}{2}$ in., nerveless or faintly 1-

nerved. Spikes rather dense, lateral, the axis rarely growing

out 31. *M. eleutherostachya*.

Leaves narrow, $\frac{3}{4}$ to $1\frac{1}{2}$ in. long, nerveless or faintly 1-nerved.

Leaves flat or concave. Spikes loose. Calyx small 32. *M. linariifolia*.

Leaves with involute margins. Flowers distant. Calyx large 33. *M. radula*.

Leaves small, scattered, crowded. Flowers solitary or very few.

Calyx large.

Leaves oblong or ovate, squarrose, under 2 lines long 34. *M. pulchella*.

Leaves linear or semiterete, erect, about 2 lines long 35. *M. conferta*.

Leaves mostly alternate. Flowers usually numerous.

Leaves flat, often vertical, several-nerved, mostly above 1 in. long. Spikes interrupted.

Leaves 2 to 8 in. long, broad or narrow. Stamens glabrous,

5 to 9 in each bundle 36. *M. leucadendron*.

Leaves 1 to 2 in. long, narrow. Stamens pubescent, 12 to 20

in each bundle 37. *M. lasiandra*.

Leaves flat, concave or undulate, several-nerved, acute or pungent-pointed, under $\frac{1}{2}$ in. or rarely $\frac{3}{4}$ in. long.

Leaves flat or undulate, finely striate, mostly about $\frac{1}{2}$ in. long.

Leaves linear-lanceolate or lanceolate. Spikes usually interrupted. Calyx-lobes triangular 38. *M. genistifolia*.

Leaves ovate-acuminate or ovate-lanceolate. Spikes rather dense. Calyx-lobes very acute 39. *M. styphelioides*.

Leaves concave, mostly under $\frac{1}{4}$ in. long, stem-clasping, 3-

or 5-nerved. Spikes long, slender, rather dense 40. *M. Huegelii*.

Leaves flat or semiterete, narrow, obscurely 1- or 3-nerved.

Leaves lanceolate or linear-lanceolate, flat, very acute, $\frac{3}{4}$ to 1 in. long.

Calyx about 1 line long 41. *M. dissitiflora*.

Calyx about $\frac{1}{2}$ line long 42. *M. linophylla*.

Leaves lanceolate or oblong-linear, thick, flat, rather crowded, erect or recurved, mostly under $\frac{1}{2}$ in. long. Spikes interrupted near the ends of the branches 43. *M. Preissiana*.

Leaves oblong or linear, narrowed at the base. Spikes rather

short, glabrous, mostly at the base of the branches 44. *M. crassifolia*.

Leaves narrow-linear or semiterete.

Leaves crowded with small fine recurved points.

Leaves mostly above $\frac{1}{2}$ in. long. Eastern species 45. *M. armillaris*.

Leaves mostly under $\frac{1}{2}$ in. long. Western species 46. *M. hamulosa*.

Leaves obtuse or with straight points.

Leaves rather crowded, often flat. Flowers pink.

Leaves mostly $\frac{1}{2}$ in. long or more 47. *M. brachystachya*.

Leaves mostly $\frac{1}{4}$ in. long or less 48. *M. glaberrima*.

Leaves rather distant, terete, $\frac{1}{2}$ to 1 in. long or more.

Flowers white 49. *M. raphiophylla*.

SERIES VI. *Capitata*.—Leaves alternate or opposite. Flowers, at least the males, in

terminal globular heads, the perfect ones occasionally in oblong or cylindrical dense spikes, the axis not growing out until after the flowering is over, the rhachis usually woolly hirsute. Fruiting spikes very dense, globular or oblong, rarely reduced to 2 or 3 fruits.

SUBSERIES I. Oppositifoliæ.—*Leaves opposite. Flowers often few or almost solitary.*

- Leaves 1 line long, thick. Spikes glabrous, ovoid-oblong. Bracts small or none. 12. *M. gibbosa*.
 Leaves thick, convex underneath, oblong or linear. Bracts imbricate.
 Flowers several in a head, glabrous. Leaves under 3 lines long, very obtuse. Staminal claws very short. 50. *M. cymbifolia*.
 Flowers 1 to 3 together. Staminal claws as long as the petals.
 Leaves mostly above $\frac{1}{2}$ in. long. Flowers glabrous 51. *M. cuticularis*.
 Leaves mostly under $\frac{1}{2}$ in. long, very obtuse. Flowers and young shoots hoary-pubescent 52. *M. sparsiflora*.
 Leaves ovate-cordate or ovate-lanceolate, flat or concave, about $\frac{1}{2}$ in. long.
 Flowers rather large, 1 to 3 together. Bracts imbricate 53. *M. calycina*.
 Flowers in terminal globular heads, and in lateral clusters 16. *M. violacea*.

SUBSERIES II. Nervosæ.—*Leaves alternate or scattered, flat, thick, 3- to 7-nerved, and rarely under $\frac{1}{2}$ in. long.*

- (75. *M. squamea*, has 3-nerved leaves, but very small; 77. *M. thymoides*; and 78. *M. striata*, have linear-lanceolate, acute, 3- or 5-nerved leaves.)
 Leaves broadly ovate-cordate or orbicular, 3- or 5-nerved, $\frac{1}{4}$ to $\frac{1}{2}$ in. long 54. *M. cordata*.
 Leaves obovate-oblong or broadly oblanceolate, 5- or 7-nerved, 1 to 2 in. long. 55. *M. globifera*.
 Leaves ovate-orbicular or obovate-oblong, prominently 3- or 5-nerved, 4 to 8 lines long 56. *M. megacephala*.
 Leaves obovate-oblong to oblanceolate, $\frac{1}{2}$ to 1 in. long, obscurely 3- or 5-nerved.
 Leaves obtuse.
 Flower-heads large. Stamens 4 lines long, numerous in each bundle 57. *M. nesophila*.
 Flower-heads small. Stamens 2 lines long, few in each bundle 64. *M. pentagona* var.
 Leaves pungent-pointed. 58. *M. Oldfieldii*.

SUBSERIES III. Longifoliæ.—*Leaves linear, terete or flat, mostly above 1 in. long. Flowers usually white or yellow.*

- Leaves linear, terete or rarely flat, with hooked points or rarely obtuse. Fruit-spikes mostly ovoid 59. *M. uncinata*.
 Leaves linear, flat, with straight points. Fruit-spikes mostly ovoid 60. *M. concreta*.
 Leaves linear-terete, with straight points. Fruit-spikes rather large, ovoid 61. *M. filifolia*.
 Leaves terete, with straight points. Fruit-heads small, globular 62. *M. hakroides*.
 Leaves flat, with straight points. Fruit-heads very small, globular 63. *M. glomerata*.

SUBSERIES III. Erythrocephalæ.—*Leaves either linear and under 1 in., or if ovate or obovate under $\frac{1}{2}$ in. long, 1- or obscurely 3-nerved. Flowers red pink or rarely orange or yellow, all in globular heads. All Western species except *M. squamea*.*

- Leaves linear, terete or flat, rigid, pungent-pointed or rarely obtuse, 1-nerved, $\frac{1}{2}$ to $\frac{3}{4}$ in. long. Flower-heads axillary and terminal 64. *M. pentagona*.
 Leaves small, ovate, obovate-oblong or lanceolate, prominently 1-nerved.

- Leaves obovate-orbicular, 2 to 3 lines long. Flower-heads large, orange 65. *M. ciliosa*.
- Leaves ovate, thick, rarely above 2 lines. Flower-heads small, pale coloured 76. *M. densa*.
- Leaves ovate-lanceolate or oblong, rigid, 3 to 4 lines long. Stamens few and short. Flower-heads pink 66. *M. polycephala*.
- Leaves nerveless or obscurely 1-nerved. Flower-heads terminal, pink (except *M. urceolaris* ?).
- Leaves obovate, 2 to 3 lines long. Stamens few and short . . . 67. *M. spathulata*.
- Leaves linear-oblong or cuneate, thick, hoary, 2 to 4 lines long. Calyx densely hoary-tomentose 68. *M. eriantha*.
- Leaves semiterete or slightly flattened. Calyx glabrous or loosely villous.
- Leaves very thick and obtuse, 2 to 3 lines long 69. *M. subtrigona*.
- Leaves thick, very obtuse, but flat, mostly 3 to 4 lines . . . 70. *M. seriata*.
- Leaves mostly semiterete or terete, obtuse, 3 to 6 lines. Flowers pink ?
- Calyx-lobe scarious. Western species 71. *M. scabra*.
- Calyx-lobe herbaceous. Eastern species 83. *M. ericifolia* var.
- Flowers yellow ? 72. *M. urceolaris*.
- Leaves slender, mostly above $\frac{1}{2}$ in. long, hirsute with fine spreading hairs, or glabrous 73. *M. trichophylla*.
- Leaves rather slender, often $\frac{1}{2}$ in. or more, hoary-tomentose or silky-villous 74. *M. holosericea*.
- Leaves small, ovate-acuminate, rigid, 3-nerved 75. *M. squamea*.

SUBSERIES IV. Pallidifloræ.—Leaves either linear-subulate and under 1 in. or broader and under $\frac{1}{2}$ in. long, nerveless or rarely prominently nerved. Flowers white or pale yellow, rarely pale pink, in dense terminal heads or spikes, the males often globular, the perfect ones ovoid or oblong, rarely globular, the rachis tomentose. Fruits in dense heads or spikes.

- Leaves ovate, acuminate, 3-nerved, about 3 lines long 75. *M. squamea*.
- Leaves ovate, flat or concave, thick, imbricate or squarrose, 1- or 3-nerved, 2 to 3 lines long 76. *M. densa*.
- Leaves flat, linear-lanceolate or oblong, rigid, acute, 3- or 5-nerved.
- Branches often spinescent. Leaves under $\frac{1}{2}$ in. long. Flowers white or yellow. Stamens 3 to 4 lines long 77. *M. thymoides*.
- Branches not spinescent. Leaves about $\frac{1}{2}$ in. long. Flowers white or pale pink. Stamens 5 to 6 lines long 78. *M. striata*.
- Leaves flat or concave, linear or lanceolate, acute, not thick, $\frac{1}{4}$ to $\frac{1}{2}$ in. long.
- Glabrous or nearly so 79. *M. polygaloides*.
- Hoary-tomentose or villous 80. *M. incana*.
- Leaves linear-subulate, rigid, pungent-pointed, $\frac{1}{2}$ to 1 in. long.
- Flower-heads globular or shortly ovoid. Eastern species . . . 81. *M. nodosa*.
- Flower-heads ovoid or oblong. Western species 82. *M. pungens*.
- Leaves narrow-linear, concave or semiterete, not pungent.
- Leaves $\frac{1}{2}$ in. long or more. Flowers yellow 82. *M. pungens* var.
- Leaves 4 to 6 lines long. Flowers white or pale.
- Staminal claws as long as the petals.
- Leaves obtuse or with a short straight point. Eastern species 83. *M. ericifolia*.
- Leaves with recurved points or obtuse. Western species . . . 84. *M. viminea*.
- Staminal claws very short, the filaments irregularly united.
- Western species 89. *M. acerosa*.
- Leaves mostly 2 to 3 lines long.

- Leaves very spreading, obtuse. Flowers rather large, in spikes of above 1 in. 85. *M. microphylla*.
 Leaves slender, acute. Flowers small, in spikes of about $\frac{1}{2}$ in. 86. *M. tenella*.

SUBSERIES V. **Paucifloræ**.—Leaves under $\frac{1}{2}$ in. long. Flowers white or pale coloured, very few in the head, or the males rarely more numerous. Fruits in clusters of 2, 3, or 4.

- Leaves oblong, flat, thick. Fruits 3 lines diameter, thick, and very smooth 87. *M. leiopyxis*.
 Leaves oblong to linear, obtuse, concave. Calyx-lobes as long as the tube. Stamens numerous. Fruits 2 lines diameter . . . 88. *M. pustulata*.
 Leaves linear, slender, acute.
 Flowers yellowish-white, in globular heads, the males rather numerous, rhachis tomentose 89. *M. acerosa*.
 Flowers (pale pink?) 4 to 6 together, rhachis and calyx glabrous 90. *M. pauperiflora*.
 Flowers and leaves white-tomentose 91. *M. aspalathoides*.

SERIES VII. **Peltatæ**.—Leaves very small, often scale-like, more or less peltately attached. Flowers small, in dense heads or spikes.

- Branchlets not excavated. Leaves mostly opposite, the points spreading, or not closely appressed to the branch.
 Leaves very thick, obtuse, spreading, 1 to 2 lines long . . . 92. *M. deltoidea*.
 Leaves finely pointed, erect, under 1 line long 93. *M. minutifolia*.
 Branchlets excavated for the scale-like, peltate, closely appressed leaves.
 Leaves mostly opposite. Flowers 3 or 4 in the heads. Calyx-lobes and petals striate. Stamens numerous in each bundle . 94. *M. foliolosa*.
 Leaves mostly in whorls of 3. Flowers strictly diœcious, in globular heads. Stamens few in each bundle 95. *M. micromera*.
 Leaves mostly alternate.
 Flowering and fruiting spikes ovoid-globular or shortly oblong 96. *M. thyoides*.
 Flowering and fruiting spikes oblong-cylindrical 97. *M. tamariscina*.

(The leaves of 40. *M. Huegelii*, when small, have some resemblance to those of this section, but are attached at the base, not above it.)

M. imbricata, Link, Enum. ii. 272, *M. taxifolia*, Schlecht. in Spreng. Syst. Veg. iii. 336, and *M. ternifolia*, F. Muell.; Miq. in Ned. Kruidk. Arch. iv. 123, which I have not seen, are not sufficiently described to be recognizable, but probably belong to some of the above species. There are also numerous names in Steudel's 'Nomenclator' taken up from garden lists, etc., and not otherwise published, which are therefore here omitted.

SERIES I. **CALLISTEMONÆ**.—Flowers large, red, or rarely greenish-yellow, in oblong or cylindrical dense spikes, glabrous or slightly pubescent, lateral on the old wood, or forming the base of leafy branches. Calyx broad at the base. Stamens above $\frac{1}{2}$ in. long.

The inflorescence and the length of the stamens give many of the species of this series the aspect of *Callistemon*, but the stamens are always very distinctly 5-adelphous.

1. ***M. longicoma*, Benth.** Apparently a tall shrub, glabrous, except sometimes the inflorescence. Leaves alternate, oblong-lanceolate, mostly acute, much narrowed at the base, 1 to $1\frac{1}{2}$ or even 2 in. long, flat or concave, 1- or 3-nerved, the lateral nerves, when present, close to the margin. Flowers large, of a rich red, in oblong-cylindrical spikes, of 1 to 2 in., forming the base of the young leafy branches, the rhachis and calyxes glabrous or pubescent. Calyx-tube about 1 line long or rather more; lobes ovate, nearly as

long as the tube, the margins slightly scarious. Petals 2 to nearly 3 lines long. Staminal bundles above $\frac{3}{4}$ in. long, the claws narrow, much longer than the petals, each with a cluster of 20 to 30 filaments at the end; anthers small. Ovules exceedingly numerous in each cell, covering a broad peltate placenta; stigma small. Fruit not seen.

W. Australia. *Drummond, Suppl. to 5th Coll. n. 32.*

2. ***M. lateritia***, *Otto in Allgem. Gart. Zeit.* ii. 257, according to *Schau. in Pl. Preiss.* i. 141. A glabrous shrub, of several feet, with virgate branches. Leaves alternate, linear, acute, narrowed at the base, flat or concave, nerveless or obscurely 1-nerved, mostly about $\frac{1}{2}$ in., rarely $\frac{3}{4}$ in. long, often drying of a bluish colour. Flowers large, of a rich scarlet, in oblong or cylindrical spikes, often 2 to 3 in. long, the axis usually growing out into a leafy shoot before the flowering is over. Calyx-tube ovoid, about 1 line long; lobes half as long, very obtuse. Petals scarious, above 1 line diameter. Stamens fully $\frac{3}{4}$ in. long, very shortly but distinctly united in clusters of 7 to 11; anthers oblong. Ovules very numerous in each cell, covering a broad peltate placenta; stigma slightly dilated.—*M. callistemonea*, *Lindl. Swan Riv. App.* 8.

W. Australia. *Lucky Bay, R. Brown; Swan River, Fraser, Drummond, 1st Coll., Preiss., n. 354, and others; Harvey and Gordon rivers, Oldfield; Bald Island, Maxwell.*

3. ***M. calothamnoides***, *F. Muell. Fragm.* iii. 114. A bushy shrub, of several feet, glabrous, except the inflorescence, and often glaucous, with virgate branches. Leaves scattered, usually crowded, linear-terete or slightly flattened, very obtuse, 4 to 6 lines long or very rarely more. Flowers large, red, in dense cylindrical spikes of 1 to 2 in., lateral on the old wood, and often reflexed, the axis growing out either before the flowering is over or shortly after, the rhachis and calyxes tomentose or nearly glabrous. Calyx-tube ovoid, rather above 1 line long; lobes ovate, about half the length of the tube. Petals 1 to $1\frac{1}{2}$ lines long. Stamens 7 to 8 lines long, shortly united in bundles of about 7; anthers small, ovate. Ovules very numerous in each cell, covering a peltate placenta; stigma scarcely dilated. Fruiting-calyx urceolate, often above 2 lines diameter. Cotyledons not folded.

W. Australia. *Rocks near Oolingara, Murchison river, Oldfield.*

4. ***M. blæriæfolia***, *Turcz. in Bull. Mosc.* 1847, i. 165. Glabrous and very densely branched. Leaves scattered, very numerous and all about the same size, spreading, linear or lanceolate, acute or somewhat obtuse, flat, obscurely 1-nerved, 2 to nearly 3 lines long. Flowers rather large (red?), in dense oblong-cylindrical spikes, sessile on the old wood, the axis apparently not growing out, the rhachis and calyxes glabrous. Calyx-tube ovoid, nearly 2 lines long; lobes obtusely triangular, erect, nearly 1 line long. Petals 2 lines diameter. Staminal bundles $\frac{1}{2}$ in. long or rather more, the claw narrow, exceeding the petals, with 10 to 15 or even more filaments, pinnately arranged along the upper half; anthers ovoid. Ovules numerous, covering a peltate placenta; stigma broad.

W. Australia. *Drummond, 3rd Coll. n. 45.* This has the foliage of *M. brachyphylla*, but the calyx and stamens are quite different.

5. ***M. diosmifolia***, *Andr. Bot. Rep. t.* 476. A tall, glabrous, rigid



shrub. Leaves scattered, spreading, crowded, ovate-lanceolate or oblong, obtuse, rigid, 1-nerved, numerous, and all about the same size, 3 to 4 lines long in some specimens, nearly $\frac{1}{2}$ in. in others. Flowers rather large, greenish-yellow, in dense oblong or cylindrical spikes below the ends of the branches. Calyx-tube broad, about 2 lines diameter; lobes rounded, very obtuse, about 1 line. Petals about 2 lines. Staminal bundles $\frac{1}{2}$ in. long or rather more, the claws shorter than the petals, divided each into 3 to 5 or rarely 7 filaments. Ovules numerous in each cell, covering a peltate placenta. Fruiting-calyx depressed-globular, very thick and hard, often nearly $\frac{1}{2}$ in. diameter.—DC. Prod. iii. 212; *M. chlorantha*, Bonpl. Pl. Malm. 22. t. 8; *M. foliosa*, Dum. Cours, according to DC.

W. Australia. King George's Sound, *Menzies*, and to the eastward, *Baudin's Expedition*, *A. Cunningham*, *Drummond*. The leaves in *Andrews's* figure are unusually narrow; *Boupland's* represents the more ordinary form.

6. *M. elliptica*, *Labill. Pl. Nov. Holl.* ii. 31. t. 173. Glabrous, except sometimes the inflorescence; branches divaricate. Leaves opposite, oval, very obtuse, flat, rather thick, $\frac{1}{4}$ to nearly $\frac{1}{2}$ in. long, faintly 1-nerved, with thickened margins, more or less glaucous. Flowers large and showy, red, in oblong-cylindrical lateral spikes of 2 to 3 in., the axis rarely growing out, the rhachis and calyxes glabrous or slightly pubescent. Calyx-tube thick, $1\frac{1}{2}$ to nearly 2 lines long; lobes ovate, thick, about 1 line. Petals about 2 lines. Staminal bundles nearly 1 in. long, the claws linear, very much exceeding the petals, each with a cluster of 20 to 30 filaments at the ends; anthers ovate. Ovules exceedingly numerous in each cell, covering the back of a hirsute placenta. Fruiting-calyxes densely packed, at least 4 lines diameter, the lobes more persistent than in the allied species, and connivent.—DC. Prod. iii. 215.

W. Australia, *Drummond*, 5th Coll. n. 140, 187; *J. S. Roe*; Young river, *Marwell*.

7. *M. hypericifolia*, *Sm. in Trans. Linn. Soc.* iii. 279. A tall glabrous shrub. Leaves mostly opposite, lanceolate or elliptical-oblong, obtuse or mucronate, $\frac{3}{4}$ to $1\frac{1}{2}$ in. long, flat or with recurved margins, the midrib prominent underneath. Flowers large, of a rich red, in dense spikes of about 2 in., forming the base of leafy branches. Calyx-tube sessile by its broad base, about 1 line long; lobes broad, obtuse, herbaceous, about as long as the tube. Petals broad, concave, contracted at the base, about 2 lines long. Staminal bundles at least $\frac{3}{4}$ in. long, the slender claws much longer than the petals, each with 15 to 20 filaments at the end. Ovules exceedingly numerous in each cell, covering the broad peltate placenta.—DC. Prod. iii. 214; *Andr. Bot. Rep.* t. 200; *Vent. Jard. Cels.* t. 10; *Lodd. Bot. Cab.* t. 199; *Metrosideros hypericifolia*, *Salish. Prod.* 351.

N. S. Wales. In swampy places, Port Jackson, *Burton*; the other specimens I have seen, in *Smith's* and several other herbaria, are all cultivated, unless it be one in *Herb. F. Mueller*, of doubtful origin, but found by him amongst some *Callistemons*, from Moreton Bay. The leaves of this species, rather thin, with a tendency to a recurved margin, differ in this respect from all others, except *M. pauciflora*.

8. *M. fulgens*, *R. Br. in Ait. Hort. Kew. ed.* 2. iv. 415. A tall glabrous shrub. Leaves mostly opposite, linear or linear-lanceolate, acute or

obtuse, narrowed at the base, very concave, nerveless or 1-nerved, mostly $\frac{3}{4}$ to 1 in. long, the glandular dots usually very conspicuous and black. Flowers large and showy, of a rich red, in rather loose oblong lateral spikes, the axis only growing out after flowering. Calyx-tube urceolate-globular, glabrous, 2 lines diameter or rather more; lobes short, broad, scarious, with thick centres. Petals 2 to 3 lines diameter. Staminal bundles often above 1 in. long, the claws usually exceeding the petals, with numerous filaments at the end. Ovules very numerous in each cell, covering the peltate placenta; stigma slightly dilated. Fruiting-calyx, when full grown, thick, hard, and nearly $\frac{1}{2}$ in. diameter, but in many specimens remaining small, although apparently ripe. Cotyledons broad and folded.—DC. Prod. iii. 214; Bot. Reg. t. 103; Lodd. Bot. Cab. t. 378.

W. Australia. Dry gravelly ridges, King George's Sound, and to the eastward, Fraser, Baxter, Maxwell. The foliage is that of *M. radula*, but the flowers are very different.

SERIES II. DECUSSATÆ.—Glabrous bushy shrubs. Leaves opposite, small, flat or concave, nerveless or 1- or 3-nerved. Flowers pink or rarely white, in small heads or clusters along the previous year's stems, or forming short loose spikes at the base of the new shoot already grown out before the flowers expand, rarely (in *M. violacea*) a few males also in terminal heads. Rhachis and calyxes glabrous.

9. *M. acuminata*, F. Muell. Fragm. i. 15. Glabrous, with rather slender virgate branches. Leaves mostly opposite, lanceolate or elliptical, acute or acuminate, and sometimes pungent-pointed, narrowed at the base, mostly 3 to 4 lines long. Flowers whitish, few together, in lateral clusters on the previous year's branches. Calyx-tube ovoid, rounded at the base, above 1 line long; lobes very short and obtuse. Petals about 1 line diameter. Staminal bundles 3 to 4 lines long, the claws exceeding the petals, each divided at the end into about 9 to 15 filaments. Ovules numerous, on a short usually bifid placenta. Fruiting-calyx nearly globular, truncate, about 2 lines diameter.

Victoria. Wimmera and Murray Desert, Dallachy.

S. Australia. Port Lincoln, R. Brown; Mount Baker Creek, L. Fischer; Kangaroo Island, R. Brown, Waterhouse.

W. Australia. Murchison river, Oldfield (with whitish flowers, as in the S. Australian specimens); in the interior, J. S. Roe (with flowers apparently reddish, and leaves rather narrower).

10. *M. leptoclada*, Benth. Glabrous, with spreading elongated almost filiform branches. Leaves opposite, often distant, elliptical oblong-linear or lanceolate, acute or rather obtuse, flat or concave, in some specimens under 2 lines, in others 3 to 6 lines long, nerveless or obscurely 1-nerved. Flowers very small and few at the base of the leafy branches, growing out long before flowering, the rhachis and calyxes quite glabrous. Calyx-tube ovoid, about $\frac{3}{4}$ line long; lobes herbaceous or with scarious margins, obtuse, half as long as the tube. Petals nearly 1 line diameter. Stamens rather longer than the petals, shortly united in bundles of 2 or 3. Ovules not very numerous, erect, on a small placenta; style rather thick, with a small stigma. Fruiting-calyx attaining $1\frac{1}{4}$ lines diameter.

W. Australia. King George's Sound, *R. Brown*; also *Drummond*, 3rd Coll. n. 65; 4th Coll. n. 66.

11. **M. basicephala**, *Benth.* Glabrous, with rather slender virgate branches. Leaves opposite or rarely alternate on luxuriant shoots, elliptical-oblong or oblanceolate, obtuse or rather acute, narrowed at the base, flat or concave, 3 to 6 lines long, nerveless or 1-nerved. Flowers deep pink, in globular heads, closely sessile on the old wood, but forming the base of leafy lateral branches grown out long before the flowers expand, the rhachis and calyxes glabrous. Calyx-tube ovoid-globular, about 1 line diameter. Stamens attaining 2 lines, shortly united in bundles of 20 to 30; anthers ovate. Ovules rather numerous, erect, on a small placenta; style rather thick, with a small stigma.

W. Australia, *Drummond*, 3rd or 4th Coll. n. 48.

12. **M. gibbosa**, *Labill. Pl. Nov. Holl.* ii. 30. t. 172. An erect glabrous shrub, of 6 to 12 ft., either dense and bushy, or with loose slender branches. Leaves mostly opposite, ovate or obovate, spreading or recurved at the top, obtuse or mucronulate, in some specimens 2 to 3 or even 4 lines long, in others much smaller, concave, with the midrib slightly prominent underneath and sometimes 2 smaller lateral nerves. Flowers red, rather small, not numerous, in short ovoid or almost globular lateral heads or spikes, often forming the base of leafy branches. Calyx-tube shorter than broad, scarcely 1 line diameter, closely sessile by its broad base; lobes short and broad, with thick centres and petal-like margins. Petals scarcely above 1 line diameter. Stamens about 3 lines long or rather more, shortly united in bundles of 10 to 15. Ovules rather numerous, but less so than in *M. thymifolia*, erect, on a short thick placenta. Fruiting spikes $\frac{1}{2}$ to 1 in. long, the calyxes somewhat enlarged, truncate, more or less immersed in the thickened woody rhachis.—*DC. Prod.* iii. 215; *Hook. f. Fl. Tasm.* i. 129.

Victoria. Marshy places, between the Grampians and Victoria ranges, *F. Mueller*, and others; on the Glenelg, *Robertson*; Portland, *Allitt*.

Tasmania. Derwent river, *R. Brown*; common in the northern parts of the island, near the sea, and in the interior, *J. D. Hooker*.

S. Australia. Moist places, Kangaroo Island, *Waterhouse*.

13. **M. decussata**, *R. Br. in Ait. Hort. Kew. ed.* 2. iv. 415. A tall glabrous shrub, attaining sometimes 20 ft. Leaves mostly opposite, from oblong-lanceolate to almost linear or very rarely broad, obtuse or acute, mostly $\frac{1}{4}$ to $\frac{1}{2}$ in. long, rigid, concave, nerveless or obscurely 1- or 3-nerved, erect or recurved, often decussate on the smaller branches. Flowers rather small, either in oblong or almost globular lateral heads or spikes and then usually barren, or, when fertile, in oblong or cylindrical interrupted spikes forming the base of leafy branches, the rhachis and calyxes glabrous. Calyx-tube closely sessile by the broad base, scarcely 1 line diameter; lobes short and broad. Petals above 1 line diameter. Stamens not above 3 lines long, very shortly united in bundles of 10 to 15. Ovules rather numerous, erect on a short thick placenta. Fruiting-calyx not much enlarged, truncate, more or less embedded in the thickened woody rhachis.—*DC. Prod.* iii. 214; *Bot. Mag.* t. 2268; *Colla, Hort. Ripul.* t. 15; *Lodd. Bot. Cab.* t. 1208;

M. parviflora, Reichb. Iconogr. Exot. t. 31; *M. oligantha*, F. Muell.; Miq. in Ned. Kruidk. Arch. iv. 123; *M. tetragona*, Otto; DC. Prod. iii. 215.

Victoria. Summit of Mount William and others of the Grampians, *F. Mueller* (a form with low depressed stems and narrow leaves).

S. Australia. S. coast, *R. Brown*; Port Lincoln and Marble Range, *Wilhelmi*; Onkaparinga range, *F. Mueller*; St. Vincent's Gulf, *Blandowski*.

M. elegans, Hornsch., from the diagnoses in Walp. Rep. ii. 162, is most probably a garden variety of *M. decussata*.

14. **M. Wilsonii**, *F. Muell. Fragm.* ii. 124. t. 15. A tall elegant shrub, glabrous or the young shoots slightly pubescent. Leaves opposite, almost imbricate on the smaller branches, linear or linear-lanceolate, erect or scarcely spreading, mostly acute, $\frac{1}{4}$ to $\frac{1}{2}$ in. long, thick, convex underneath and obscurely 1- or 3-nerved. Flowers red, solitary or 2 or 3 together in the axils of stem-leaves, often numerous along the principal branches without forming regular spikes, or rarely the upper ones in an irregular terminal head or spike. Calyx-tube glabrous, ovoid, rounded at the base, about 1 line long; lobes lanceolate, acute, at least as long as the tube. Petals very concave, narrowed at the base, above 1 line long. Staminal bundles about $\frac{1}{2}$ in. long, the claw slender and much longer than the petals, each with 15 to 20 filaments at or near the end. Ovules rather numerous in each cell, covering a laterally attached peltate placenta.

Victoria. Around Lake Hindmarsh, Wimmera, *Dallachy*.

S. Australia. Desert of the Tattiarra country, *J. E. Woods*; Port Lincoln, *R. Brown* (with more obtuse and somewhat spreading leaves).

15. **M. thymifolia**, *Sm. in Trans. Linn. Soc.* iii. 278 and *Exot. Bot.* t. 36. A low glabrous shrub, rarely above 2 ft. high, but very spreading and gregarious, often covering acres of ground. Leaves mostly opposite, lanceolate elliptical-oblong or almost linear, nearly acute, $\frac{1}{4}$ to $\frac{1}{2}$ in. long or rarely more, rigid, concave, the midrib scarcely conspicuous. Flowers red, not numerous, in short ovoid or oblong lateral spikes, the axis often growing out into a leafy shoot at the time of flowering, the rhachis and calyxes glabrous. Calyx-tube ovoid, rounded at the base, about $1\frac{1}{2}$ lines long; lobes much shorter, thick and obtuse. Petals nearly 2 lines long. Staminal bundles $\frac{1}{2}$ in. long, the claws exceeding the petals, each with numerous filaments pinnately arranged along the upper half with a few on the inner face; anthers very small. Ovules exceedingly numerous in each cell, densely covering the peltate placenta; style rather long, the stigma slightly dilated. Fruiting-calyx not immersed in the rhachis, crowned by the persistent lobes.—DC. Prod. iii. 214; Bot. Mag. t. 1868; Lodd. Bot. Cab. t. 439; *Metrosideros calycina*, Cav. Ic. iv. 20. t. 336 (from the fig. and descr.); *Melaleuca coronata*, Andr. Bot. Rep. t. 278; *M. gnidifolia*, Vent. Jard. Malm. t. 4; *M. discolor*, Reich. in Spreng. Syst. iii. 337; Iconogr. Exot. t. 113; *Metrosideros gracilis*, Salisb. Prod. 352?

N. S. Wales. Port Jackson to the Blue Mountains, *R. Brown*, *Burton*, *Sieber*, *n.* 323, and others; Hastings river, *Beckler*.

Victoria? Some specimens from Churchill Island, Port Phillip, *Gunn*, have the calyx of this species, but rather smaller, in other respects they are more like and perhaps a variety of *M. decussata*.

: In some of *R. Brown*'s specimens the leaves are all narrow-linear.



J. Schönfeld del. & lith.

F. Muelier direxit.

De Gruchy & Trenchamp.

Melaleuca Wilsoni. *W.*

16. **M. violacea**, *Lindl. Swan Riv. App.* 8. A low spreading glabrous shrub, the flowering branches often corky. Leaves opposite, sessile, spreading, cordate-ovate or ovate-lanceolate, acute or almost obtuse, rigid, 3-nerved, $\frac{1}{4}$ to $\frac{1}{2}$ in. long. Flowers purple-red, either in terminal globular heads with a few large bracts or in small axillary or lateral clusters with very few or small bracts, the rhachis and calyxes glabrous. Calyx-tube $\frac{3}{4}$ to 1 line long; lobes ovate, nearly as long. Petals $1\frac{1}{2}$ to above 2 lines diameter. Staminal bundles 3 to 4 lines long, but always so much incurved as to appear short; claws narrow, exceeding the petals, with short not very numerous filaments pinnately arranged from near the base. Ovules rather numerous on a shortly bifid placenta; style rather thick, with a dilated stigma. Fruiting-calyx often corky, with prominent persistent lobes.—*Schau. in Pl. Preiss.* i. 146.

W. Australia. King George's Sound and to the eastward towards Cape Riche, *Preiss.* n. 273, 274, *Oldfield, Maxwell, Drummond, Suppl. to 4th Coll.* n. 6, 7; (Swan River, *Drummond?*).

Var. *petiolata*. Leaves smaller, shortly petiolate, rounded at the base.—*Drummond, 5th Coll. Suppl.* n. 29.

SERIES III. LATERALES.—Leaves alternate. Flowers usually small, in axillary or lateral clusters, the axis rarely growing out, the rhachis woolly pubescent or rarely glabrous.

17. **M. cardiophylla**, *F. Muell. Fragm.* i. 225. A tall bushy shrub, with rigid although often slender divaricate branches, the young shoots and inflorescence often pubescent, otherwise glabrous. Leaves alternate, from very broadly cordate-ovate and 2 or 3 lines long to ovate-lanceolate and nearly $\frac{1}{2}$ in. long, often stem-clasping, ovate, acuminate or pungent-pointed, rigid, striate with many nerves. Flowers usually rather small, white, in small lateral clusters. Calyx-tube thick, above 1 line long, striate; lobes short, broad, continuous with the tube, occasionally with narrow scarious margins. Petals above 1 line long, rigid in the centre with scarious margins. Staminal bundles about 3 lines long; the claws spatulate, exceeding the petals, each with numerous filaments pinnately arranged along the upper half. Ovules rather numerous, erect on a short placenta; style short, stigma not dilated. Fruiting-calyxes distinct, nearly globular, very smooth, about 4 lines diameter.

W. Australia. Murchison river, *Oldfield*, including a variety with lanceolate leaves.

Var. *parviflora*. Flowers small, the calyx woolly.—Swan River, *Drummond, 1st Coll.*; Murchison river, *Oldfield*; Sharks' Bay, *Denham*; Dirk Hartog's Island, *Milne*; Bay of Rest, N.W. Coast, *A. Cunninghamham*.

Var. ? *longistaminea*, *F. Muell.* Staminal bundles $\frac{3}{4}$ in. long, the claws much longer than the petals.—Murchison river, *Oldfield*.

18. **M. undulata**, *Benth.* A very rigid shrub, with thick often tortuous branches, usually glabrous except the inflorescence. Leaves alternate, lanceolate or ovate-lanceolate, acuminate, acute and pungent-pointed, narrowed at the base, rigid, undulate but otherwise flat, more or less distinctly several-nerved, $\frac{1}{2}$ to nearly $\frac{1}{2}$ in. long. Flowers white, much larger than in *M. lateriflora*, not numerous, in lateral clusters of which the upper ones rarely form an irregular terminal spike, the rhachis glabrous or pubescent. Calyx-

tube ovoid, above 1 line long; lobes short, broad, thick, striate, with narrow scarious edges. Staminal bundles 3 to 4 lines long, the claws rather narrow, longer than the petals, each with numerous filaments clustered at the end with a few on the inner face. Ovules not very numerous, erect on a short placenta; stigma small. Fruiting-calyx thick, hard and smooth, about 3 lines diameter.

W. Australia, *Drummond*, 3rd or 4th Coll. n. 45; between Cape Arid and Lucky Bay, *Baxter*; towards the Great Bight, *Maxwell*. This species has the leaves sometimes of *M. styphelioides*, but a very different inflorescence and calyx. A specimen from the Melbourne Botanic Garden has the young shoots hairy.

Var. *minor*. Leaves narrower, nearly those of *M. lateriflora*, var. *acutifolia*, but the flowers of *M. undulata*.—*Drummond*, 5th Coll. n. 172.

19. **M. elachophylla**, *F. Muell. Fragm.* iii. 120. A bushy glabrous shrub of several feet. Leaves scattered, spreading, ovate, obtuse, 1 to nearly 2 lines long, flat or slightly concave, thick, rigid, nerveless. Flowers pink or purple, few in small loose globular heads, at first lateral, but the axis soon growing out into a leafy branch, the rhachis and calyces glabrous. Calyx-tube $\frac{3}{4}$ line long; lobes short, obtuse, herbaceous or slightly scarious. Petals above 1 line diameter. Staminal bundles 3 to 4 lines long, the claws about as long as the petals, each with 7 to 11 filaments. Ovules not very numerous, on a peltate placenta. Fruiting-calyx about 2 lines diameter.

W. Australia, *Drummond*, 5th Coll. n. 153; Fitzgerald river, *Maxwell*.

20. **M. lateriflora**, *Benth.* Glabrous except the slightly pubescent young shoots and the inflorescence. Leaves alternate, broadly obovate-spatulate in the primary form, obtuse or mucronulate, 2 to 4 lines long, flat, rigid, obscurely several-nerved, narrowed into a distinct petiole. Flowers small (white?), in globular clusters, axillary or lateral on the old wood, the rhachis pubescent. Calyx-tube glabrous, ovoid, about 1 line long; lobes not half so long, obscurely striate in the centre with broad scarious margins. Petals stiff, about 1 line diameter. Staminal bundles 3 to 4 lines long, the claws longer than the petals, each with 15 to 20 or even more filaments crowded at the end. Ovules rather numerous in each cell, erect on a small bifid placenta; style, when perfect, long, with a small stigma. Fruiting-calyx very smooth, about $1\frac{1}{2}$ lines diameter, crowned by the short persistent lobes.

W. Australia, *Drummond* (4th Coll. ?), n. 75.

Var. *elliptica*. Leaves mostly broadly elliptical-oblong, 4 to 6 lines long, with a few of the lower ones only of each branch more or less obovate-spatulate.—*Drummond* (4th Coll. ?), n. 62.

Var. *acutifolia*. Leaves oblong-lanceolate, oblanceolate or slightly cuneate, acute, nerveless.—*Drummond*, 5th Coll. n. 140. The form of the leaves in this variety is so different that it seems difficult to unite it with that first described, but the inflorescence and flowers are precisely the same, and the var. *elliptica* is intermediate as to foliage.

21. **M. exarata**, *F. Muell. Fragm.* iii. 114. A low spreading shrub, glabrous except sometimes the inflorescence, the bark of the flowering branches very corky and deeply furrowed. Leaves scattered, crowded, linear, thick, concave or semiterete, obtuse, 2 to 3 lines long, often much tuberculate. Flowers small, red, irregularly scattered along the previous year's branches or forming long cylindrical but not dense spikes, and usually inserted in the

furrows of the cork, the rhachis and calyxes glabrous or rarely pubescent. Calyx-tube campanulate, about 1 line long; lobes ovate, rather shorter than the tube. Petals above 1 line long, very spreading or deflexed. Stamens scarcely above 3 lines long, shortly united in bundles of 7 to 11. Ovules erect, on a short bifid placenta; stigma small. Fruiting-calyx about 2 lines diameter, more or less corky, and often half-immersed in the cork of the branch.—*Calothamnus* (?) *suberosa*, Schau. in Pl. Preiss. i. 156.

W. Australia, *R. Brown*; towards Cape Riche, *Preiss*, n. 206 b, *Drummond*, n. 17, 43, and 5th Coll. n. 161, *Marwell*.

Drummond's specimens, 5th Coll. n. 162, 163 (partly) have the bright red flowers and other characters of *M. exarata*, except that the branches are not at all corky.

22. **M. fasciculiflora**, *Benth.* Glabrous, except sometimes the inflorescence, the branches not at all or only slightly corky. Leaves scattered, often crowded, linear, thick, concave or semiterete, obtuse, in some specimens all under $\frac{1}{4}$ in. in others $\frac{1}{4}$ to $\frac{1}{2}$ in. long. Flowers apparently white, in lateral or axillary clusters along the previous year's branches, or rarely the males in small terminal heads, the axis not growing out, the very short rhachis glabrous or pubescent. Calyx-tube glabrous, ovoid-campanulate, about 1 line long; lobes half as long, obtusely triangular. Petals scarcely 1 line long, usually reflexed. Stamens nearly 3 lines long, very shortly united in bundles of 7 to 11. Ovules not numerous, erect on a small bifid placenta; stigma small. Fruiting-calyx thick, about 2 lines diameter, scarcely corky, densely clustered.

W. Australia, *Drummond*, 5th Coll. n. 159, 164, 168 (partly); Gordon river, *Marwell*.

23. **M. teretifolia**, *Endl. in Hueg. Enum.* 49. A tall erect shrub with long rigid branches, quite glabrous. Leaves alternate, linear-subulate, terete, smooth or slightly sulcate above, rigid, acute, mostly $1\frac{1}{2}$ to 2 in. long. Flowers white, rather small, in sessile axillary or lateral heads, the rhachis glabrous. Calyx-tube ovoid or campanulate, about 1 line long; lobes short, obtuse, herbaceous or with very narrow scarious margins. Petals about 1 line diameter. Staminal bundles nearly 3 lines long, the claws about as long as the petals, each with 7 to 11 filaments at the end. Ovules rather numerous on a peltate placenta; style rather thick, with a broad stigma. Fruiting-calyx about $1\frac{1}{2}$ lines diameter, urceolate or nearly globose.—*M. hakeacea*, *F. Muell. Fragm.* iii. 117; *Gymnagathis teretifolia*, Schau. in *Linnæa*, xvii. 243, and in Pl. Preiss. i. 133.

W. Australia. Marshes or moist sandy places. Swan River, *Huegel*, *Drummond*, 1st Coll. and (2nd Coll. ?) n. 49; *Woodman's Point* and *Hester Point*, *Preiss*, n. 268, 269; *Harvey river*, *Oldfield*; *Hampden*, *Clark*.

24. **M. alsophila**, *A. Cunn. Herb.* Quite glabrous. Leaves alternate, mostly vertical, oblanceolate, acute or rarely obtuse, much narrowed at the base, $1\frac{1}{2}$ to $2\frac{1}{2}$ in. long, flat, thick, rigid, obscurely 3- or 5-nerved. Flowers small, in small sessile axillary or lateral clusters or heads. Calyx almost urceolate, quite glabrous, the tube about $\frac{3}{4}$ line long; lobes about half as long, ovate, obtuse. Petals small, exceedingly deciduous. Staminal bundles about 3 lines long, the claws exceeding the petals, each with 7 to 11 fila-

ments at the end. Ovules few in each cell, erect, on a small placenta; stigma small.

N. Australia. N.W. Coast, Usborne's Harbour, *Voyage of the Beagle*; Liverpool river and Cambridge Gulf, *A. Cunningham*.

25. **M. acacioides**, *F. Muell. Fragm.* iii. 116. A small tree, of a pale green, nearly glabrous or the young shoots and inflorescence pubescent. Leaves alternate, from broadly oblong and under 1 in. to lanceolate or almost linear and 2 in. long, obtuse or scarcely mucronate, narrowed at the base, often vertical, flat, thick, faintly 3- or 5-nerved. Flowers small, in small dense sessile globular heads, mostly axillary or lateral, the rhachis and calyxes pubescent. Calyx-tube nearly globular, about $\frac{3}{4}$ line diameter; lobes short and broad. Petals about $\frac{1}{2}$ line diameter. Staminal bundles about 3 lines long, the claws much longer than the petals, unequally divided at the end each into 5 to 7 filaments. Ovules few in each cell, rather large, erect on a short thick placenta. Fruiting-calyx often scarcely above 1 line diameter.

N. Australia. Pandanus swamps, Else's Creek, Arnhem's Land, and dry plains at the sources of the Roper river, *F. Mueller*.

SERIES IV. CIRCUMSCISSÆ.—Leaves alternate. Flowers in axillary lateral or rarely terminal globular heads. Calyx-tube circumsciss at the top of the ovary after flowering and falling off with the lobes, the adnate portion alone persistent. Fruits more or less cohering in a globular head.

This series might be considered as a distinct section under Schauer's name, *Asteromyrtus*, characterized by the circumsciss calyx-tube, which has not been observed in any other species. The inflorescence, however, the cohering fruiting-calyxes, and other accessory characters occur in other groups of the genus.

26. **M. Baxteri**, *Benth.* Very rigid, the young shoots softly tomentose. Leaves alternate, obovate-oblong, obtuse, rigidly coriaceous, 3-nerved, 1 to nearly 2 in. long. Flowers not seen. Fruiting-heads lateral, sessile, densely globular, the fruits almost truncate, about 3 lines diameter. Calyx truncate to the level of the capsule as in *M. symphyocarpa* and *M. angustifolia*.

W. Australia. King George's Sound or to the eastward, *Barter*.

27. **M. symphyocarpa**, *F. Muell. in Trans. Phil. Inst. Vict.* iii. 44. Glabrous and glaucous. Leaves alternate, oblong, obtuse, narrowed at the base, $1\frac{1}{2}$ to $2\frac{1}{2}$ in. long, mostly vertical, flat, rigid, many-nerved. Flowers in dense globular lateral heads, sessile on the former year's branches. Bracts shorter than the calyx-tube. Calyx-tube campanulate, often angular by pressure, about 2 lines long, glabrous or pubescent; lobes short, broad, orbicular. Petals rather above 1 line diameter. Staminal bundles 4 to 5 lines long, the claws narrow, much longer than the petals, each with a tuft of slender filaments at the end. Ovules rather numerous, erect on a short thick placenta. Fruiting-heads $\frac{1}{2}$ in. diameter, the fruits closely appressed or connate, the calyx-tube circumsciss and deciduous, leaving the adnate part truncate on a level with the capsule.

N. Australia. Islands of the Gulf of Carpentaria, *R. Brown*; on the mainland,

F. Mueller. Very near *M. angustifolia*, the veins of the leaves more numerous and slender, the inflorescence mostly lateral, and the bracts smaller.

28. *M. angustifolia*, *Gærtn. Fruct. i. 172. t. 35*. Glabrous or the young shoots slightly silky. Leaves alternate, narrow-oblong, often narrowed at the base, mostly $1\frac{1}{2}$ to 2 in. long, flat, often vertical, distinctly 5-nerved. Flowers in dense terminal globular sessile heads. Bracts broad, imbricate, scale-like, usually exceeding the calyx-tube and persistent. Calyx-tube broad, nearly 2 lines diameter, silky-pubescent or villous; lobes short and broad. Petals $1\frac{1}{2}$ lines diameter. Staminal bundles 4 to 5 lines long, the claws united in a ring at the base, narrow, exceeding the petals, each with a tuft of numerous short slender filaments at the end; anthers very small. Ovules several in each cell, erect on a short placenta. Fruiting-heads about $\frac{1}{2}$ in. diameter, the fruits very closely appressed but scarcely connate, the calyx-tube circumsciss and deciduous, leaving the adnate part truncate on a level with the tube.—*Asteromyrtus Gærtneri*, Schau. in *Linnaea*, xvii. 243.

Queensland. Endeavour river, *Banks and Solander, A. Cunningham*.

In some heads the ovary remains small and abortive; the calyx, enlarging much after flowering, becomes broadly campanulate, bordered by the persistent hardened claws of the staminal bundles.

Gærtner figures the seeds as winged, but it is doubtful whether he had them perfect, otherwise he would have seen the embryo.

SERIES V. SPICIFLORÆ.—Leaves alternate or opposite. Flowers either solitary, or few and distant, or in more or less interrupted, oblong cylindrical or elongated spikes, sometimes at first terminal, but the axis usually growing out before the flowering is over, rarely in dense lateral cylindrical spikes. Rhachis glabrous pubescent or villous.

29. *M. pauciflora*, *Turcz. in Bull. Mosc. 1847, i. 166*. A tree of 60 to 80 ft., the young shoots silky-pubescent, the older foliage glabrous. Leaves opposite, spreading, from oblong-elliptical and obtuse or mucronate to lanceolate and acute, $\frac{1}{4}$ to $\frac{1}{2}$ in. long, rather thin with the margins often recurved and the midrib prominent underneath as in *M. hypericifolia*. Flowers (white?) few, small, in short terminal spikes, the axis growing out before the flowering is over, the rhachis pubescent. Calyx glabrous, campanulate; the tube scarcely above $\frac{1}{2}$ line long; lobes nearly as long, ovate, obtuse. Petals about 1 line diameter. Staminal bundles 3 to 4 lines long, the claws usually shorter than the petals but variable, each with 7 to 15 filaments at the end; anthers small. Ovules rather numerous in each cell, erect on a small peltate placenta; style long with a small stigma. Fruiting-calyx rather above 1 line diameter, crowned by the persistent lobes, but not seen very perfect.

N. S. Wales. "East Australia, *Gilbert, n. 40*;" n. 221 of Sydney woods sent to Paris in 1854, *M'Arthur*. I have not seen *Gilbert's* specimens, but *M'Arthur's* quite agree with *Turczaninow's* description, and the peculiar foliage occurs in no other species except *M. hypericifolia*.

Victoria? A specimen without flower from the muddy banks of the Yarra in *Herb. F. Mueller*, may belong to this species.

30. *M. squarrosa*, *Sm. in Trans. Linn. Soc. vi. 300*. A handsome erect shrub, usually from 6 to 10 ft., but sometimes attaining twice that height, glabrous or the young shoots and inflorescence pubescent or villous.

Leaves mostly opposite or nearly so, from broadly ovate-cordate to ovate-lanceolate, 5 or 7-nerved, rigid, acute, almost pungent, mostly 3 to 4 lines and rarely $\frac{1}{2}$ in. long. Flowers yellowish-white, sessile in oblong or cylindrical spikes of about 1 to 2 in., at first terminal, but the axis often growing out before the flowering is over, or the flowers from the first much below the ends of the branches, the floral-leaves or bracts sometimes almost like the stem-leaves, but usually shorter, broader and sometimes reduced to small coloured bracts. Calyx-tube ovoid, above 1 line long; lobes very short, herbaceous, obtuse. Petals scarcely 1 line long. Stamens rarely above 3 lines long, very shortly united in bundles of 8 to 12 or almost free; anthers oblong. Ovules not very numerous in each cell, erect on a short 2-lobed placenta. Fruiting-spikes rather dense, but not closely compact as in the *Capitatae*.—DC. Prod. iii. 215; Labill. Pl. Nov. Holl. ii. 28. t. 169; Bot. Mag. t. 1935; Hook. f. Fl. Tasm. i. 129; Lodd. Bot. Cab. t. 1130; *M. myrtifolia*, Vent. Jard. Malm. t. 47.

N. S. Wales. Port Jackson to the Blue Mountains, *Fraser*, *R. Cunningham*, and others; Illawarra, *Shepherd*.

Victoria. Marshes of the Yarra, *F. Mueller*; moist heaths on the Glenelg, *Robertson*; Portland, *Allitt*.

Tasmania. Port Dalrymple, *R. Brown*; abundant in moist sandy soil, *J. D. Hooker*.

S. Australia. Kangaroo Island, *R. Brown*; towards Rivoli Bay, *F. Mueller*.

31. ***M. eleutherostachya***, *F. Muell. Fragm.* iii. 117. A tall bushy shrub with virgate branches, glabrous except the inflorescence. Leaves opposite, linear or lanceolate, mostly erect and recurved, acuminate with a short recurved point, flat or concave, nerveless or 3-nerved, $\frac{1}{4}$ to $\frac{1}{2}$ in. long. Flowers (white?) in oblong or cylindrical spikes of about 1 in., not very dense, lateral and sessile or shortly pedunculate on the old wood, the axis very rarely growing out into a leafy branch, the rhachis woolly. Calyx-tube nearly glabrous, campanulate, $\frac{1}{2}$ to $\frac{3}{4}$ line long; lobes as long as the tube, orbicular and much imbricate, rigid and striate, with a narrow scarious minutely ciliate border. Petals about 1 line diameter, not striate. Staminal bundles about 5 lines long, the claws narrow, much longer than the petals, each with 15 or more filaments at the end. Ovules rather numerous, erect on a short placenta; stigma not dilated. Fruiting-spike dense, rarely above 1 in. long; calyxes nearly globular, $1\frac{1}{2}$ to 2 lines diameter, crowned by the persistent inflexed lobes. Cotyledons broad, concave or slightly folded.

W. Australia. Murchison river, *Oldfield*; Sharks' Bay, *Milne*.

Var. *abietina*. More rigid. Leaves spreading, short, very rigid, decussate on the younger branches.—*Drummond 5th Coll. n. 160, J. S. Roe*.

32. ***M. linariifolia***, *Sm. in Trans. Linn. Soc.* iii. 278, and *Exot. Bot.* t. 56. A tall tree, with slender branches, the young shoots and inflorescence usually pubescent, the adult foliage glabrous and often glaucous. Leaves mostly opposite, linear or linear-lanceolate, concave or keeled, rigid, acute, $\frac{3}{4}$ to $1\frac{1}{2}$ in. long. Flowers in distinct pairs, in rather dense spikes of 1 to $1\frac{1}{2}$ in., at first terminal or in the upper axils, the axis soon growing out into a leafy branch, the rhachis and calyxes more or less pubescent. Calyx-tube ovoid-globular, 1 to $1\frac{1}{2}$ lines long; lobes shorter, broad, obtuse, with scarious or petal-like margins. Petals about twice as long as the calyx-lobes. Sta-

minal bundles often $\frac{1}{2}$ in. long or more, the claws long and narrow, sometimes filiform, each with numerous pinnately-arranged filaments; anthers very small. Ovules very numerous in each cell, covering a peltate placenta; style rather thick, with a broadly capitate stigma. Fruiting-calyx not much enlarged. Seeds minute, cuneate; cotyledons not folded and not much longer than the radicle.—DC. Prod. iii. 214; *Metrosideros hyssopifolia*, Cav. Ic. iv. 20. t. 336.

Queensland. Moreton Bay, *C. Stuart*.

N. S. Wales. Port Jackson, *R. Brown*, *Fraser*, and others; Hastings river, *Beckler*.

Var. *trichostachya*. Leaves usually smaller. Flowers smaller in looser spikes. Bracts very narrow. Stamens more crowded on a shorter claw. Fruiting-calyx rather more open.—*M. trichostachya*, Lindl. in Mitch. Trop. Austr. 277; Belyando river, *Mitchell*; Burdekin and Gilbert rivers and along the N.E. Coast, *F. Mueller*; Cooper's Creek, *Howitt's Expedition*.

33. **M. radula**, Lindl. *Swan Riv. App.* 8. A tall glabrous shrub with virgate branches. Leaves opposite, linear, acute, concave or with involute margins, $\frac{3}{4}$ to $1\frac{1}{2}$ or even 2 in. long, nerveless or obscurely 1-nerved. Flowers pink or white, rather large, closely sessile in pairs at the base or below the ends of leafy branchlets, the pairs distant or rarely forming interrupted spikes. Calyx-tube glabrous, attached by the broad base, 1 to $1\frac{1}{2}$ lines long and often broader than long; lobes very short and broad, usually reduced to a narrow scarious rim. Petals 2 to 3 lines diameter. Staminal bundles attaining nearly $\frac{1}{2}$ in., the claws usually shorter than the petals, each with very numerous (50 to 60 or more) filaments on the inner face as well as on the edges; anthers small. Ovules numerous in each cell, covering a peltate placenta; style rather thick, with a broad peltate stigma. Fruiting-calyx when perfect globular, smooth, 3 to 4 lines diameter, but often scarcely enlarged although apparently ripe. Seeds linear-cuneate; cotyledons semiterete or slightly folded.—Schau. in Pl. Preiss. i. 145.

W. Australia. Swan River, *Drummond*, 1st Coll.; Canning river, *Preiss*, n. 306, 307; Champioun Bay and Murchison river, *Oldfield*. The foliage is that of *M. fulgens*, but the flowers are very different.

34. **M. pulchella**, *R. Br. in Ait. Hort. Kew. ed.* 2. iv. 414. A spreading shrub of 2 to 3 ft., usually glabrous. Leaves scattered, oblong or ovate, obtuse, spreading or recurved, rarely exceeding 2 lines, rigid, nerveless or obscurely 1- or 2-nerved. Flowers rather large, solitary or 2 or 3 together below the ends of the branches. Calyx-tube glabrous, adnate by its broad base, especially after flowering, about 1 line long and often broader than long; lobes scarcely shorter than the tube, ovate-triangular, herbaceous. Petals $2\frac{1}{2}$ lines diameter. Staminal bundles 4 lines to nearly $\frac{1}{2}$ in. long but inflexed so as to appear short, the claws exceeding the petals, each with a few filaments at the end and very numerous shorter ones on the inner face especially near the base. Ovules exceedingly numerous, covering a peltate placenta; style clavate at the end but the stigma scarcely dilated. Fruiting-calyx urceolate-globular, 3 lines long or rather more, crowned by the persistent spreading lobes.—DC. Prod. iii. 214; *M. densa*, Colla, Hort. Ripul. App. 3. t. 4; Lodd. Bot. Cab. t. 200; *M. serpyllifolia*, Dum. Cours. according to DC.

W. Australia. Lucky Bay, *R. Brown*; King George's Sound, and to the eastward,

Drummond, 5th Coll. n. 145; gravelly soil in the interior, Phillip's river, Cape Le Grand and Cape Arid, *Maxwell*. In the male flowers the calyx is much less adnate at the base than in the perfect ones.

35. *M. conferta*, Benth. A densely-branched glabrous shrub. Leaves scattered, crowded, erect, narrow-linear, concave or semiterete, nerveless, obtuse or almost acute, about 2 lines long. Flowers few, rather large, sessile below the ends of the branches, surrounded by scarious deciduous bracts. Calyx urceolate, the tube fully $1\frac{1}{2}$ lines long; lobes nearly 1 line, ovate with scarious margins. Petals reflexed, nearly 2 lines long. Staminal bundles about 4 lines long, the claws shorter than the petals, each with very numerous filaments on the inner face as well as at the end and on the edges. Ovules very numerous in each cell, on a peltate placenta; style long, with a dilated stigma. Fruiting-calyx globular, truncate, 3 to 4 lines diameter.

W. Australia. In the interior, *J. S. Roe*. Allied to *M. pulchella*, but with a very different foliage.

36. *M. leucadendron*, Linn. Mant. 105. A tree often attaining a considerable size, with a thick often spongy bark peeling off in layers, the branches slender and often pendulous, but in some situations remaining a small tree or shrub with rigid erect branches. Leaves alternate, often vertical, elliptical or lanceolate, straight, oblique or falcate, acuminate, acute or obtuse, when broad very rigid and 2 to 4 in. long, when narrow sometimes 6 to 8 in. long, narrowed into a petiole, 3- to 7-nerved with anastomosing veins. Flower-spikes elongated, more or less interrupted, solitary or 2 or 3 together, from under 2 to above 6 in. long, at first terminal but the axis growing out after flowering into a leafy branch, the rachis and calyxes glabrous pubescent tomentose or woolly. Calyx-tube ovoid, usually about $1\frac{1}{2}$ lines long; lobes short, orbicular, often scarious on the margin. Petals 1 to $1\frac{1}{2}$ lines diameter. Staminal bundles under $\frac{1}{2}$ in. long, the claws sometimes exceedingly short, sometimes exceeding the petals, each with 5 to 8 filaments at the end. Ovules numerous, ascending on an oblong placenta. Fruiting-calyx usually about 2 lines diameter, varying from globular to almost hemispherical. Seeds obovoid or cuneate; cotyledons obovate, thick, much longer than the radicle.—*F. Muell. Fragm. iv. 55*; *M. leucadendron*, Linn.; *M. minor*, Sm.; and *M. viridiflora*, Gærtn.; DC. Prod. iii. 212, and the same names with the addition of *M. saligna*, Blume, Mus. Bot. i. 66, with the several synonyms quoted by DC. and Blume; *Metrosideros albida*, Sieb. Pl. Exs., referred in Spreng. Syst. Cur. Post. 194 to *M. coriacea* (attributed by mistake to Labill. instead of Salisb. Prod. 352).

N. Australia. Islands of the Gulf of Carpentaria, *R. Brown*; common from the Victoria river to the Gulf of Carpentaria, *F. Mueller*, and others.

Queensland. On the coast at various points from the Burdekin to Moreton Bay, *Banks* and *Solander*, *R. Brown*, *A. Cunningham*, *F. Mueller*, and others; also in the interior, *Mitchell*.

N. S. Wales. Port Jackson to the Blue Mountains, *R. Brown*, *Sieb. n. 319*, and others; Hastings and Clarence rivers, *Beckler*.

This species, very widely spread and abundant in the Indian Archipelago and Malayan Peninsula, varies exceedingly in the size, shape and texture of the leaves, in the young shoots very silky or the spikes silky-villous or woolly or the whole quite glabrous, in the short and dense or long and interrupted spikes, in the size of the flower, in the greenish-yellow,

whitish, pink or purple stamens, etc., and at first sight it is difficult to believe that they all can be forms of one species, but on examination none of these variations are sufficiently constant or so combined as to allow of the definition of distinct races. In general the name of *M. leucadendron* is given to the glabrous forms, and *M. minor* to the silky or villous-flowered ones, but the indumentum is here the most uncertain of all characters. *M. lancifolia*, Turcz. in Bull. Mosc. 1847, i. 164, and *M. Cunninghamiana*, Turcz. l. c. from the Philippine Islands, belong to one of the common Archipelago forms with rather thin leaves and small flowers, and I cannot find the auricles of the staminal bundles mentioned as characterizing the former. *M. Cunninghami*, Schau. in Walp. Rep. ii. 927, is a large silky form with large broad thick leaves and large flowers; *M. saligna*, Schau. l. c., from Endeavour river, is more glabrous with long acuminate leaves and long glabrous interrupted spikes; *M. mimosoides*, A. Cunn., Schau. l. c., is very little different from the last. Some specimens from Rockingham Bay, *Dallachy*, and from Endeavour river, *R. Brown*, are remarkable for their dark coloured stamens.

Var. ? *parvifolia*. Leaves mostly $\frac{1}{2}$ to 1 in. long. Flowers small and only very slightly pentadelphous.—*M. lanceolata*, R. Br. Herb.; *Callistemon nervosus*, Lindl. in Mitch. Trop. Austr. 335; *Leptospermum speciosum*, Schau. in Walp. Rep. ii. 923 (described from Cunningham's specimens in bud only). Behind the Government House, Sydney, *R. Brown*; rocks, Balmy Creek, in the interior of Queensland, *Mitchell*; Moreton Bay, *A. Cunningham*. This may perhaps prove to be a distinct species, but I can find no character to distinguish it from the small-leaved specimens of *M. leucadendron*.

M. Sieberi, Schau. in Walp. Rep. ii. 928, from the character given, is most probably to be included among the forms of *M. leucadendron*.

37. *M. lasiandra*, *F. Muell. Fragm.* iii. 115. A small tree, the young foliage silvery-silky, becoming glabrous and glaucous with age. Leaves alternate, often vertical, from elliptical-lanceolate to almost linear, acute or acuminate, narrowed at the base, rigid, thick, 1 to 2 in. long, obscurely 3- or 5-nerved. Flowers small, more or less distant, forming irregularly interrupted cylindrical spikes, at first terminal, but the axis soon growing out into a leafy shoot, the rhachis and calyxes softly pubescent or villous. Calyx-tube ovoid, about 1 line long; lobes ovate, about half as long as the tube. Petals not much longer than the calyx-lobes, often pubescent. Staminal bundles about 3 lines long, the claws short, more or less pubescent outside, irregularly divided, each into 12 to 20 filaments, of which some are often free almost to the base; anthers small. Ovules exceedingly numerous, covering a peltate placenta; style pubescent at the base; stigma small. Fruiting-calyx not much enlarged, crowned by the persistent lobes. Seeds not winged.

N. Australia. Arid country, on the Upper Victoria and Fitzmaurice rivers, *F. Mueller*.

38. *M. genistifolia*, *Sm. in Trans. Linn. Soc.* iii. 277, and *Exot. Bot.* t. 55. A tall shrub or a tree, attaining 30 to 40 ft. or even more, glabrous or more or less pubescent or hirsute. Leaves scattered, lanceolate or linear-lanceolate, rigid, acute and often pungent-pointed, flat, usually about $\frac{1}{2}$ in., but in some specimens longer, in others much shorter, finely striate, with 7 or more nerves, conspicuous on the floral leaves, almost evanescent on others. Flowers in loose oblong or cylindrical spikes, sometimes terminal, but the axis often growing out before the flowers expand, often much interrupted, and many of the bracts developed into leaves like the stem ones or shorter and broader, rarely all small scale-like and deciduous, the rhachis and calyxes glabrous pubescent or hirsute. Calyx-tube ovoid, above 1 line long; lobes triangular, sometimes acute, almost as in *M. styphelioides*, sometimes more ob-

tuse as in *M. Preissiana*. Petals very deciduous. Staminal bundles about 3 lines long, the claws usually shorter but sometimes longer than the petals, each with numerous filaments. Ovules numerous, closely packed on a small bifid placenta. Fruiting-calyx not much enlarged, nearly globular, crowned by the persistent lobes.—DC. Prod. iii. 212; *M. lanceolata*, Otto, from the diagnoses in DC. Prod. iii. 212; *M. bracteata*, F. Muell. Fragm. i. 15; *Metrosideros decora*, Salisb. Prod. 352.

N. Australia. Sturt's Creek, Van Alphen and Upper Gilbert rivers, *F. Mueller*, also *M'Douall Stuart's Expedition*.

Queensland. Brisbane river, *Fraser, A. Cunningham*, and others; Pine river and Mount Elliott, *Fitzalan*; Marlborough, *Bowman*.

N. S. Wales. Port Jackson, *Burton*; Paramatta, *R. Brown, Wools*; New England, *C. Stuart*; Cox's river, *Fraser*.

39. ***M. styphelioides***, *Sm. in Trans. Linn. Soc.* iii. 275. A tall tree, attaining sometimes 80 ft., the young shoots and inflorescence silky-pubescent or villous, otherwise glabrous. Leaves alternate, ovate or ovate-lanceolate, acuminate, pungent-pointed, mostly about $\frac{1}{2}$ in. long, rigid, finely striate, with many nerves. Flowers in rather dense oblong or cylindrical spikes, the axis growing out before the flowering is over, the floral leaves either like the stem ones and persistent or reduced to deciduous bracts. Calyx-tube ovoid, above 1 line long; lobes lanceolate, acuminate, rigid, acute or pungent, as long as or longer than the tube. Petals as long as the calyx lobes, but very deciduous. Staminal bundles about 3 lines long, the claws not much longer than the calyx-lobe, each with several filaments shortly pinnate along the upper portion. Ovules very numerous, closely packed on a small placenta. Fruiting spikes often leafy, the calyxes crowned by the rigid erect lobes.—Colla, Hort. Ripul. App. t. 6.

N. S. Wales. Port Jackson to the Blue Mountains, *R. Brown, Fraser, Wools, Miss Atkinson*; Hastings, Clarence, and Richmond rivers, *Beckler, C. Moore*.

40. ***M. Huegelii***, *Endl. in Hueg. Enum.* 48. An erect shrub, of 4 to 6 ft., with virgate or spreading branches, usually glabrous, except the inflorescence. Leaves alternate, spiral, sessile, attached by the broad concave base, ovate or ovate-lanceolate, acutely acuminate, 1 to 3 lines long, more or less prominently 3- or 5-nerved. Flowers in rather dense, but slender cylindrical spikes, of 1 to 3 in., the axis growing out before the flowering is over, the rachis tomentose. Calyx-tube broad, scarcely 1 line long; lobes short, broad, obscurely striate. Petals almost scarious, about 1 line diameter. Staminal bundles about 4 lines long, the claws exceeding the petals, irregularly divided at the end, each into 7 to 11 filaments. Ovules not very numerous in each cell, erect, on a short placenta; stigma small. Fruiting spikes cylindrical, not very dense, the calyxes about 2 lines diameter, globular, crowned by the persistent lobes.—Schau. in Pl. Preiss. i. 144.

W. Australia. Sands, Swan River, *Huegel, Fraser, Drummond* (3rd Coll. ?), n. 43; *Preiss*, n. 293, *Oldfield*.

41. ***M. dissitiflora***, *F. Muell. Fragm.* iii. 153. Very closely allied to *M. linophylla*, and probably a variety, and chiefly distinguished by the flowers twice as large. Young shoots silky-pubescent. Leaves alternate, linear-lanceolate, acutely acuminate, narrowed at the base, 1 to $1\frac{1}{2}$ in. long, flat,

rigid, obscurely 3-nerved or nerveless. Flowers distant at the base of leafy branches. Calyx glabrous, closely sessile, almost urceolate, the tube about 1 line; lobes not half so long. Petals about $\frac{3}{4}$ line. Staminal bundles 3 lines long or rather more, the claws often exceeding the petals, each with 15 to 20 filaments, more or less pinnately arranged along the upper half. Ovules rather numerous, on a peltate placenta; style rather thick, with a broad stigma.

N. Australia. Between the Bonney and Mount Morphett, *M'Douall Stuart's Expedition*. (A single specimen in *Herb. F. Mueller*.)

42. **M. linophylla**, *F. Muell. Fragm.* iii. 115. Glabrous, except the inflorescence. Leaves alternate, linear-lanceolate, acutely acuminate, narrowed at the base, $\frac{3}{4}$ to $1\frac{1}{2}$ in. long, flat, rigid, obscurely 3-nerved. Flowers very small, often distant, forming loosely cylindrical spikes at the base of the leafy branchlets. Calyx-tube glabrous or pubescent, scarcely $\frac{1}{2}$ line long; lobes broad, obtuse. Petals very small. Staminal bundles about $1\frac{1}{2}$ lines long, the claws exceeding the petals, with several filaments more or less pinnately arranged on the upper half. Ovules numerous? but not seen perfect; style short, with a peltate stigma. Fruiting-calyx not above 1 line diameter.

N.W. Australia, *F. Gregory*. (A single specimen in *Herb. F. Mueller*.)

43. **M. Preissiana**, *Schau. in Pl. Preiss.* i. 143. A tall shrub or tree, the young shoots and often the inflorescence more or less pubescent or hirsute, becoming glabrous with age. Leaves scattered, rather crowded, erect, spreading or recurved, lanceolate or oblong-linear, acute or obtuse, flat thick and rigid, obscurely 1- or 3-nerved, rarely exceeding $\frac{1}{2}$ in. in length. Flowers not large, white or yellowish, in loose oblong or cylindrical spikes, 1 to 2 in. long, rarely terminal, the axis growing out very early into a leafy shoot, and sometimes much interrupted, many of the bracts then leafy like the stem-leaves; rhachis and calyxes glabrous or tomentose. Calyx-tube ovoid, thick, above 1 line long; lobes much shorter, ovate, often persistent. Petals about 1 line diameter or smaller. Staminal bundles 3 to nearly 4 lines long, the claws rather exceeding the petals, each with 10 to 12 or more filaments on the upper portion. Ovules very numerous, covering a broad peltate placenta. — *M. pubescens*, *Schau. in Walp. Rep.* ii. 928; *M. curvifolia*, *Schlecht. Linnæa*, xx. 654.

Victoria. Port Phillip, *R. Brown, Gunn*; Bacchus Marsh, *F. Mueller*; on the Murray, *Dallachy*.

S. Australia. Port Lincoln, *R. Brown*; Light Rier, *Behr*; St. Vincent's Gulf, *F. Mueller*; Kangaroo Island, *Waterhouse, F. Mueller*.

W. Australia. Goose Island Bay, *R. Brown*; King George's Sound to Cape Riche, and to Swan River, *Collie, Drummond*, 1st Coll.; *Preiss*, n. 265; *Harvey, Milne*.

Var. *leiostachya*. Inflorescence quite glabrous. Leaves often smaller, narrower and more recurved. Ovules fewer. — *M. parviflora*, *Lindl. Swan Riv. App.* 8; King George's Sound and to the eastward, *Harvey, Oldfield, Maxwell*; Isle Boniche, *Fraser*; Murchison river, *Drummond*, 6th Coll. n. 74; Dirk Hartog's Island, *Milne*.

44. **M. crassifolia**, *Benth.* Quite glabrous, with virgate branches. Leaves scattered, not crowded, erect or spreading, often incurved, otherwise flat, oblong or oblong-linear, obtuse, narrowed at the base, thick, nerveless or obscurely 1- or 3-nerved, mostly about $\frac{1}{2}$ in., but in some specimens nearly $\frac{3}{4}$.

and in others $\frac{1}{4}$ to $\frac{1}{2}$ in. long. Flowers (pale red or white?) in interrupted leafy spikes, forming the base of lateral shoots, the rhachis and calyxes quite glabrous. Calyx-tube attached by the broad base, thick, rather above 1 line long; lobes very short and broad. Petals 1 line diameter or rather more. Staminal bundles about 3 lines long, the claws as long as the petals, each bearing towards the end 11 to 15 filaments. Ovules numerous, on a peltate placenta; style thick, with a truncate stigma. Fruiting-spikes more or less interrupted, the calyxes fully 2 lines diameter, often slightly immersed in the rhachis.

W. Australia, *Drummond*, 5th Coll. n. 142, 154, and a form with smaller narrower leaves, and smaller flowers, 5th Coll. n. 141, 153.

45. **M. armillaris**, *Sm. in Trans. Linn. Soc.* iii. 277. A tall glabrous shrub or sometimes a small tree, of 20 to 30 ft. Leaves scattered, crowded, narrow-linear, acute and often recurved at the end, mostly $\frac{1}{2}$ in. long or rather more. Flowers almost immersed in the rhachis of dense or interrupted cylindrical spikes, forming the base of the previous year's or of young lateral shoots. Calyx-tube about 1 line long; lobes shorter, almost acute. Petals above 1 line long. Staminal bundles 3 to 4 lines long or rather more, each with numerous filaments pinnately arranged along the upper half. Ovules very numerous in each cell, covering a peltate placenta; stigma broad.—DC. Prod. iii. 213; *M. ericæfolia*, *Andr. Bot. Rep.* t. 175; *Vent. Jard. Malm.* t. 76; *Wendl. Coll.* i. t. 29, not of *Sm.*; *Metrosideros armillaris*, *Gærtn. Fruct.* i. 171. t. 34; *Cav. Ic.* t. 335.

N. S. Wales. Port Jackson, *R. Brown*, *R. Cunningham*, and others; northward to Richmond river, *C. Moore*; southward to Twofold Bay, *A. Cunningham*, and Towamba river, *F. Mueller*.

Victoria. Common on river-banks at the south-eastern extremity of the colony, *F. Mueller*.

S. Australia. Kangaroo Island, *R. Brown*.

Var. (P) *tenuifolia*. Leaves semiterete, very narrow, under $\frac{1}{2}$ in. long. Flowers smaller.—*M. cylindrica*, *R. Br. Herb.*—Dunk river, *R. Brown*, perhaps a distinct species.

46. **M. hamulosa**, *Turcz. in Bull. Mosc.* 1847, i. 165. A glabrous shrub, with the virgate branches and foliage of *M. viminea*, from which it chiefly differs in the elongated inflorescence. Leaves scattered, rather crowded, erect, slightly spreading or recurved at the end, linear, with usually a fine recurved point or at length obtuse, $\frac{1}{4}$ to $\frac{1}{2}$ in. long. Flowers white, in rather dense cylindrical spikes, of 1 to 2 in., on short lateral peduncles, the axis however often growing out into a leafy shoot before the flowering is over. Calyx-tube attached by a rather broad base, about 1 line diameter; lobes short. Petals 1 line long. Staminal bundles about 3 lines long in the perfect flowers or 4 lines in the males, the claws exceeding the petals, each with 12 to 15 or more filaments at the end. Ovules numerous, on a peltate often bifid placenta. Fruiting-spikes more or less interrupted; calyxes about $1\frac{1}{2}$ lines diameter.

W. Australia, *Drummond*, 3rd Coll. n. 44, 5th Coll. n. 149; Phillips Range, *Maxwell*. Notwithstanding the inflorescence, which in an artificial arrangement removes this to a distance from *M. viminea*, it may possibly prove to be a variety only of that species.

47. **M. brachystachya**, *F. Muell. Fragm.* iii. 119. A spreading

bushy shrub, of 4 or 5 ft., glabrous or the young shoots and inflorescence silky-pubescent. Leaves scattered, linear, flat or semiterete, rigid, acute, obscurely 1-nerved, mostly $\frac{1}{2}$ to $\frac{3}{4}$ in. long. Flowers pink, in oblong or cylindrical, rather dense or interrupted spikes, the axis growing out before the flowers expand, the rhachis and calyxes usually pubescent. Calyx-tube attached by the broad base, about 1 line long; lobes much shorter, acute or obtuse. Petals above 1 line diameter. Staminal bundles fully 4 lines long, the claws rather narrow, usually exceeding the petals, with 11 to 15 or even more filaments at the end. Ovules rather numerous, on a peltate placenta.

W. Australia, Drummond, 5th Coll. n. 150; Gardiner river and Middle Mount Barren, Maxwell.

48. **M. glaberrima**, F. Muell. *Fragm.* iii. 119. Apparently diffuse, the specimen quite glabrous. Leaves scattered, rather crowded, linear, semiterete, obtuse or with a short straight point, mostly 2 to 3 lines long. Flowers pink, in rather dense oblong or cylindrical spikes, forming the base of lateral branches, the rhachis and calyxes glabrous. Calyx-tube attached by the broad base, $\frac{3}{4}$ line long, thick, with short obtuse lobes. Petals fully 1 line long. Staminal bundles about 3 lines long, the claws about as long as the petals, with 7 to 11 filaments at the end. Ovules rather numerous, on a peltate placenta; stigma small. Fruits rather dense, about 2 lines diameter.

W. Australia. Middle Mount Barren, Maxwell. Described from a single small specimen in Herb. F. Mueller. It is evidently nearly allied to *M. brachystachya*, and very likely a more glabrous small-leaved variety.

49. **M. raphiophylla**, Schau. in *Pl. Preiss.* i. 143. A tall shrub or tree, attaining sometimes 40 to 50 ft., glabrous, except sometimes the inflorescence, the bark deciduous in paper-like sheets. Leaves alternate, narrow-linear, terete or slightly flattened, mostly acute and $\frac{3}{4}$ to 1 in., rarely only $\frac{1}{2}$ in. and occasionally $1\frac{1}{2}$ in. long. Flowers yellowish-white, in oblong or cylindrical, somewhat interrupted spikes, either terminal or the axis grown out before the flowers expand, the rhachis and calyxes glabrous or slightly pubescent. Calyx-tube closely sessile, with a broad base, 1 to $1\frac{1}{2}$ lines long and almost as broad; lobes very short, broad and scarcely scarious. Petals 1 to $1\frac{1}{2}$ lines diameter. Staminal bundles 4 to 5 lines long, the claws usually exceeding the petals, each with about 15 to 20 filaments at the end or on the inner face above the middle. Ovules exceedingly numerous on a peltate placenta. Fruiting-calyxes smooth, nearly globular, 2 to 3 lines diameter, broadly sessile on the somewhat thickened rhachis.

W. Australia, Drummond, 5th Coll. n. 143 and 150; Cape Naturaliste, Collicie; Swan River, Preiss, n. 264 (also 267, according to Schauer, but that n. in Herb. Sonder, is *M. trichophylla*); Murchison, Blackwood, Tweed and Fitzgerald rivers, Oldfield; S. Hutt river, Gregory; Gardiner river, Maxwell; and a shorter-leaved form, Fitzgerald and Phillips rivers, Maxwell.

SERIES VI. CAPITATÆ.—Leaves alternate or opposite. Flowers, at least the males, in terminal heads, the perfect ones occasionally in oblong or cylindrical dense spikes, the axis not growing out until after the flowering is over, the rhachis usually woolly-hirsute. Fruiting spikes very dense, globular or oblong, rarely reduced to 2 or 3 fruits.

50. **M. cymbifolia**, *Benth.* Much branched and quite glabrous. Leaves opposite, rather crowded, oblong-linear, very obtuse, thick, concave or flat above, very convex underneath, about 2 or rarely 3 lines long, usually smooth, shining, and nerveless. Flowers few (white?), in small terminal heads, surrounded by decussate imbricate bracts, falling off during flowering. Calyx-tube glabrous, more or less 5-angled, about $\frac{3}{4}$ line long. Staminal bundles not 2 lines long, the claws shorter than the petals, each with 11 to 15 filaments. Ovules rather numerous in each cell, on an oblong peltate placenta. Fruiting-calyxes few together, truncate, 2 lines diameter or rather more.

W. Australia, *Drummond*, 3rd Coll. n. 51, 5th Coll. n. 155.

51. **M. cuticularis**, *Labill. Pl. Nov. Holl.* ii. 30. t. 171. A tall shrub or tree, quite glabrous, with rigid tortuous branches, the bark deciduous in paper-like layers. Leaves opposite, linear oblong or narrow-lanceolate, obtuse, thick, flat or concave above, convex underneath, $\frac{1}{4}$ to nearly $\frac{1}{2}$ in. long. Flowers solitary or 2 or 3 together at the ends of the branches, surrounded by scale-like decussately imbricate bracts. Calyx-tube glabrous, campanulate, about $1\frac{1}{2}$ lines long; lobes nearly as long, erect, lanceolate or triangular. Petals concave, reflexed. Staminal bundles 4 to 5 lines long, the claws about as long as the calyx-lobes, with a dense tuft of above 20 filaments at the end; anthers rather small. Ovules numerous in each cell, on a peltate placenta. Fruiting-calyx thick, campanulate, about 3 lines diameter, with thick more or less persistent lobes.—DC. Prod. iii. 214; Schau. in Pl. Preiss. i. 145; *M. abietina*, Sm. in Rees Cycl. xxiii.; DC. Prod. iii. 214.

W. Australia. King George's Sound and Swan River, *Menzies*, *Drummond*, 1st Coll. and 5th Coll. n. 155; *Preiss*, n. 303 and 304, and others.

52. **M. sparsiflora**, *Turcz. in Bull. Mosc.* 1847, i. 167. A bushy shrub, the young shoots and inflorescence more or less pubescent. Leaves opposite, decussate on the smaller branchlets, oblong, very obtuse, thick, flat or concave above, very convex and nerveless underneath, $1\frac{1}{2}$ to 3 lines long. Flowers solitary or 2 or 3 together at the ends of the branches, surrounded by numerous decussately imbricate bracts, pubescent or tomentose as well as the calyxes. Calyx-tube ovoid, about 1 line long; lobes scarcely shorter. Petals above 1 line long. Staminal bundles fully 3 lines long, the claws narrow, as long as the petals, with 15 or more filaments at the end. Ovules numerous in each cell, on a peltate bifid placenta. Fruiting-calyx usually solitary, urceolate, above 2 lines diameter.

W. Australia, *Drummond*, 3rd Coll. n. 50 and 68.

53. **M. calycina**, *R. Br. in Ait. Hort. Kew. ed.* 2. iv. 416. A tall rigid shrub, glabrous or the young shoots slightly pubescent. Leaves opposite, cordate-ovate or ovate-lanceolate, acute, flat or concave, rigid, 3- or 5-nerved in cultivated specimens, thicker and almost nerveless in the wild ones, rarely exceeding $\frac{1}{2}$ in. Flowers 2 or few together, in terminal heads or clusters, surrounded by rather numerous decussately imbricate bracts, the axis growing out soon after flowering. Calyx-tube glabrous, turbinate, about $1\frac{1}{2}$ lines long; lobes herbaceous, acute, fully 2 lines long in cultivated specimens, smaller in the wild ones. Petals almost boat-shaped, scarcely exceeding the calyx-lobes.

Staminal bundles 4 to 5 lines long, the claws scarcely exceeding the petals, with 20 or more filaments at the end. Ovary exceptionally glabrous on the top; ovules numerous in each cell, on a peltate bifid placenta.—DC. Prod. iii. 215.

W. Australia. Lucky Bay, *R. Brown*; also *Drummond*, 5th Coll. n. 165.

54. **M. cordata**, *Benth.* Rigid and glabrous, except the inflorescence. Leaves numerous, alternate, very spreading, ovate or orbicular, cordate or almost stem-clasping, acute or obtuse, rigid, more or less distinctly 3- or 5-nerved, $\frac{1}{4}$ to $\frac{1}{2}$ in. long. Flowers red, rather small, in dense, terminal, globose heads, the axis not growing out till after flowering, the rhachis and calyxes densely tomentose-villous. Bracts deciduous. Calyx-tube ovoid, about 1 line long; lobes very short and broad or scarcely prominent. Petals about 1 line diameter, usually with a deep-coloured centre. Staminal bundles 4 to 5 lines long, the claws usually exceeding the petals, with 7 to 11 filaments at the end. Ovules not very numerous, erect, on a bifid placenta; stigma small. Fruiting-calyx smooth, nearly 2 lines diameter.

W. Australia, *Drummond*, 5th Coll. n. 156, and *Suppl. 5th Coll. n. 31*. There are two forms, one with the leaves 3 to 4 lines diameter, and obscurely nerved, the other with the leaves nearly twice as large and distinctly 5-nerved, but they do not otherwise differ.

55. **M. globifera**, *R. Br. in Ait. Hort. Kew. ed. 2. iv. 411*. A tall shrub or tree, attaining 30 ft., glabrous, or the young shoots and inflorescence slightly silky-hairy, the bark deciduous in paper-like layers. Leaves alternate, from almost obovate to narrow-oblong, flat, obtuse or mucronulate, narrowed at the base, distinctly 5- or rarely 7-nerved, mostly $1\frac{1}{2}$ to $2\frac{1}{2}$ in. long. Flowers in dense globular terminal sessile heads, of $\frac{3}{4}$ in. or more diameter. Bracts broad, scale-like, imbricate, exceeding the calyx, but very deciduous. Calyx-tube nearly globular, nearly $1\frac{1}{2}$ lines diameter; lobes very short and broad, obtuse, more or less petal-like. Petals about 1 line diameter. Staminal bundles 4 to 5 lines long, the claws often longer than the petals, and more or less confluent at the base, very irregularly divided each into 5 to 9 filaments, some of them almost free. Ovules not numerous, erect, on a short placenta. Fruiting calyxes more or less concrete, forming dense globular masses often 1 in. diameter.—DC. Prod. iii. 212.

W. Australia. King George's Sound or to the eastward, *Barter*; Cape Arid and Middle Island, *Maxwell*.

56. **M. megacephala**, *F. Muell. Fragm. iii. 117*. A very bushy, rigid shrub, attaining 8 to 10 ft., the young shoots more or less villous with loose spreading hairs, or rarely glabrous from the first. Leaves alternate, from broadly obovate-orbicular and under $\frac{1}{2}$ in. to obovate-oblong and nearly 1 in. long, very obtuse or scarcely mucronate, narrowed at the base, coriaceous, prominently 3- or 5-nerved. Flowers yellowish-white, in dense terminal globular heads, the axis not growing out until after flowering, the rhachis usually tomentose. Bracts large, broad, scale-like, imbricate on the young head, but soon falling off. Calyx-tube glabrous and membranous, or tomentose and more rigid, about $1\frac{1}{2}$ lines long; lobes very thin and scarious, more or less ciliate, persistent. Petals scarious, $1\frac{1}{2}$ to 2 lines diameter. Staminal bundles 5 to 6 lines long, the claws petal-like, rather broad, each with 10 to

20 filaments at the end. Fruiting-calyx often 3 lines diameter, globular, villous; the capsule separable into 3 cocci. Seeds short, thick, cuneate; cotyledons very broad, folded over each other.

W. Australia. Champion Bay and Murchison river, *Oldfield*, *Walcott*, *Drummond*, 6th Coll. n. 72: Sharks' Bay, *Martin*.

57. **M. nesophila**, *F. Muell. Fragm.* iii. 113. A shrub of 6 to 8 ft., glabrous, or the young shoots very slightly silky. Leaves alternate, obovate-oblong, obtuse or rarely mucronate, thickly coriaceous, flat and often vertical, obscurely 3-nerved, $\frac{1}{2}$ to nearly 1 in. long. Flowers pink, in dense terminal heads, the rhachis and calyxes glabrous or slightly villous. Bracts short. Calyx-tube villous, broad, above 1 line long; lobes short, broad, scarious. Petals scarious, scarcely 1 line diameter. Staminal bundles about 4 lines long, the claws broad, not much exceeding the petals, and sometimes very short, with 10 to 15 filaments at the end. Ovules not very numerous, erect on a small placenta; stigma small. Fruiting spikes very dense, the calyxes truncate, often 3 lines diameter.

W. Australia. Doubtful Island, *Oldfield*; also *Drummond*, 5th Coll. n. 157 (with rather smaller flowers and fruits), 3rd Coll. n. 54 (with rather longer and more acute leaves, and the rhachis and calyxes more villous).

58. **M. Oldfieldii**, *F. Muell. Fragm.* iii. 118. A shrub of 3 or 4 ft., with slender branches, glabrous except the inflorescence. Leaves alternate, oblong-lanceolate, with a fine almost pungent point, narrowed into a rather long petiole, rigid, obscurely 3- or 5-nerved, $\frac{1}{2}$ to 1 in. long. Flowers not seen. Fruiting-heads dense, globular, $\frac{1}{2}$ to $\frac{3}{4}$ in. diameter, the rhachis and calyx-tubes tomentose, and at length more or less concrete, the lobes scarious, and at length wearing away. Seeds not numerous in each cell, erect on a small placenta, but not seen perfect.

W. Australia. Murchison river, *Oldfield*.

59. **M. uncinata**, *R. Br. in Ait. Hort. Kew. ed. 2.* iv. 414. A tall shrub, the young shoots more or less silky pubescent. Leaves alternate, linear-subulate, terete or rarely slightly compressed, smooth, sulcate or almost angular, 1 to 2 in. long, with a fine recurved point, or rarely obtuse. Flowers small, numerous, in very dense terminal ovoid-oblong or almost globular heads, the axis often growing out before the flowering is over; the rhachis and calyxes woolly, hirsute, or rarely quite glabrous. Calyx-tube not 1 line long; lobes exceedingly small and short. Staminal bundles about 2 lines long, the claws about as long as the petals, each with 5 to 7 filaments. Fruiting-spikes very dense and compact, rarely above $\frac{1}{2}$ in. long; the calyxes turbinate, truncate, about $1\frac{1}{2}$ lines long.—*DC. Prod.* iii. 213; *Schau. in Pl. Preiss.* i. 138; *M. hamata*, *Field. and Gardn. Sert. Pl. t.* 74; *M. Drummondii*, *Schau. in Pl. Preiss.* i. 138 (rather shorter-leaved specimens); *M. semiteres*, *Schau. l. c.* 143 (leaves longer, not hooked).

N. S. Wales. Barren branches, Lachlan river, *Fraser*.

Victoria. Wimmera, *Dallachy*; N.W. part of the colony, *L. Morton*.

S. Australia. Port Lincoln, *R. Brown*; Boston Point and Lake Victoria, *F. Mueller*; Kangaroo Island, *F. Mueller*, *Waterhouse*.

W. Australia. From the south coast to Vasse, Swan, and Murchison rivers, *Drummond*, 1st Coll. n. 114 and 116, 3rd Coll. n. 43; *Preiss.* n. 270, 278; *Barter*; *Oldfield*.

60. **M. concreta**, *F. Muell. Fragm.* iii. 118. An erect shrub of several ft., with rather slender branches, the young shoots silky-silvery, otherwise glabrous. Leaves alternate, linear or lanceolate, obtuse or acute, flat but thick, and sometimes very narrow, 1-nerved, mostly 2 to 3 in. long. Flowers yellowish-white, in globular terminal and axillary heads, the axis not growing out until after flowering, the rhachis usually tomentose. Calyx-tube broad, often hirsute at the base, not $\frac{3}{4}$ line long; lobes exceedingly short and broad. Petals $\frac{3}{4}$ line diameter. Staminal bundles nearly 3 lines long, the claws scarcely exceeding the petals, each with about 7 filaments at the end. Stigma small. Fruiting-spikes ovoid, very compact, about $\frac{1}{2}$ in. long; the calyxes about $1\frac{1}{2}$ lines long, very closely packed and angular, but not really connate, truncate at the top. Seeds narrow-cuneate; cotyledons not folded.

W. Australia. Murchison river, *Oldfield*.

Var. *brevifolia*. Leaves more acute, 1 to $1\frac{1}{2}$ in. long.—Murchison river, *Oldfield*.—Only seen in fruit, and therefore doubtful.

61. **M. filifolia**, *F. Muell. Fragm.* iii. 119. Erect, attaining several ft., glabrous except the inflorescence. Leaves alternate, linear-subulate, terete, obtuse or acute, rigid but not pungent, $\frac{3}{4}$ to $1\frac{1}{2}$ in. long in some specimens, 1 to 2 in. or even more in others. Flowers (yellow or white?) in ovoid-oblong or almost globular terminal spikes, the axis growing out into a leafy branch after flowering; the rhachis and calyxes more or less tomentose or woolly. Calyx-tube scarcely 1 line diameter; lobes orbicular, scarious. Petals small. Staminal bundles about 3 lines long, the claws short, each with 7 to 9 filaments at the end. Ovules few, erect, on a short oblong placenta. Fruiting-calyxes about 2 lines diameter, either closely packed and more or less concrete in ovoid or globular spikes, or looser by abortion and quite free.

W. Australia. Arid rocky places, Murchison river, *Oldfield*.

M. nematophylla, *F. Muell. Fragm.* iii. 119, with longer leaves, does not appear to me to be otherwise distinguishable from *M. filifolia*. None of the specimens of either species have good flowers, and the colour of those of *M. nematophylla* appears to me to be rather whitish-yellow than purple.

62. **M. hakeoides**, *F. Muell. Herb.* A tall shrub, the young shoots softly silky-pubescent and somewhat silvery, the older foliage glabrous. Leaves alternate, linear-subulate, terete or slightly compressed, usually sulcate, obtuse or acute, 1 to 2 in. long, the point straight. Flowers small, in dense globular or rarely ovoid terminal heads, the rhachis and calyxes usually villous. Calyx-tube about $\frac{1}{2}$ line long; lobes very small. Petals scarcely 1 line diameter. Staminal bundles not 2 lines long, the claws short, each with 3 to 7 filaments. Ovules few in each cell, erect; stigma slightly dilated. Fruiting-spikes very dense, globular or ovoid, the calyxes truncate, about 1 line diameter.

N. S. Wales. Mount Goningberi, near Cooper's Creek, *Victorian Expedition*.

63 ? **M. glomerata**, *F. Muell. Rep. Babb. Exped.* 8. Softly pubescent or glabrous with age. Leaves alternate, linear, thick, but more or less flattened, narrowed at the base, nerveless or obscurely 1- or 3-nerved, obtuse or acute, 1 to 2 in. long. Flowers unknown. Fruiting-heads small, dense, globular; calyxes nearly globular, truncate, 1 to $1\frac{1}{2}$ lines diameter.

N. Australia. Upper Victoria river, *F. Mueller*.

S. Australia. N.W. interior, *M'Donnell Stuart's Expedition*.

W. Australia. Murchison river, *Oldfield*.

The specimens being in fruit only, the species is doubtful, and may possibly include *M. hakeoides*.

64. **M. pentagona**, *Labill. Pl. Nov. Holl.* ii. 27. *t.* 166. A tall shrub with virgate branches, the young shoots often silky-downy, otherwise glabrous except the inflorescence. Leaves alternate, lanceolate or linear, mucronate or pungent, flat, but thick and rigid, obscurely veined, mostly $\frac{1}{2}$ to $\frac{3}{4}$ in. long. Flowers small, pink or purple, in very dense globular heads, terminal axillary or lateral, the axis not growing out till after flowering, the rhachis tomentose or woolly. Calyx-tube campanulate or turbinate, about $\frac{1}{2}$ line long; lobes exceedingly short and broad, scarious and often confluent. Petals under 1 line diameter. Stamens not above 2 lines long, shortly united in bundles of 3 to 7. Ovules not numerous, erect from a small placenta. Fruiting-calyxes about 2 lines diameter, often few only in an ovoid head, when more numerous the head very compact and globular.—*DC. Prod.* iii. 213; *Schau. in Pl. Preiss.* i. 136.

W. Australia, *Labillardière*; *Drummond*, 5th *Coll.* n. 152; sandy soil near salt lagoons, *Espérance Bay*, *Maxwell*.

Var. *subulifolia*, *Schau.* Leaves linear-subulate, terete, rigid, spreading, furrowed underneath.—King George's Sound, *R. Brown*; *A. Cunningham*; *Preiss*, n. 309; *Drummond*, 3rd *Coll.* n. 52.—This form seems almost to pass into *M. nodosa*.

Var. (?) *latifolia*. Leaves oblong-cuneate, rigid, obtuse or mucronate, *Drummond*, 3rd *Coll.* n. 57; granite hills, Cape Paisley, *Maxwell*. Possibly a distinct species, but our specimens of the different forms of *M. pentagona* are not sufficiently good to judge of their limits. The species sometimes approaches *M. striata* in foliage, but is readily distinguished by the small globular flower-heads.

65. **M. ciliosa**, *Turcz. in Bull. Mosc.* 1862, ii. 326. Branches rigid, pubescent. Leaves scattered, obovate ovate-orbicular or very broadly oblong, obtuse, 2 to 3 lines long, flat, concave, thick, rigid, 1-nerved, the somewhat thickened margin ciliate with deciduous hairs. Flowers (yellow-red?) in dense globular terminal heads, the rhachis tomentose-hirsute. Bracts rigid, striate, but very deciduous. Calyx-tube membranous, about 1 line long; lobes united in a scarious continuous border. Petals about 1 line diameter, so deciduous as to be only seen in the bud. Staminal bundles about 5 lines long, divided to about the middle or lower down into 9 to 11 filaments; anthers small. Ovules rather numerous in each cell, on a short placenta.

W. Australia. Between Moore and Murchison rivers, *Drummond*, 6th *Coll.* n. 76. *M. leptospermoides*, *Schau. in Pl. Preiss.* i. 139, from Quangen Plains, *Preiss*, n. 312, may possibly be the same species, and if so this name should be preferred to *Turczaninow's*. In one of the very imperfect specimens seen, the leaves are broader than in *Drummond's*; in the other they are mostly narrower.

66. **M. polycephala**, *Benlh.* Rigid, with divaricate branches, the young shoots slightly hoary. Leaves alternate, spreading, ovate, ovate-lanceolate or oblong, acute, flat, rigid, 1-nerved, mostly 3 to 4 lines long. Flowers small, pink, in small dense terminal globular heads, the axis not growing out until after flowering, the rhachis and calyxes villous. Calyx-

tube membranous, broadly campanulate, scarcely above $\frac{1}{2}$ line long; lobes short, broad, scarious, occasionally confluent. Petals $\frac{1}{2}$ to $\frac{3}{4}$ line diameter. Stamens about 2 lines long, shortly united in bundles of 3 or rarely more. Ovules not numerous, erect on a small placenta. Fruiting calyxes about $1\frac{1}{2}$ lines diameter, very densely packed in globular heads.

• **W. Australia**, *Drummond*, 5th Coll. n. 175.

67. **M. spathulata**, *Schau. in Pl. Preiss. i. 134.* A small spreading shrub, the young shoots silky-pubescent or softly hirsute, soon becoming glabrous. Leaves scattered, spreading or recurved, obovate-spathulate, obtuse or scarcely mucronate, much narrowed at the base, 2 to 3 or rarely 4 lines long, flat, thick, smooth, obscurely 1-nerved. Flowers small, red, in dense terminal globular heads, the axis not growing out till after flowering, the rhachis and sometimes the calyxes hirsute. Calyx-tube thin, about $\frac{1}{2}$ line long; lobes half as long as the tube, rounded. Petals about $\frac{1}{2}$ line diameter. Stamens 2 to $2\frac{1}{2}$ lines long, very shortly united in bundles of 2 to 5 (usually 3); anthers small. Ovules not numerous in each cell, erect on a small placenta; stigma small. Fruiting-heads globular, very dense, about 4 lines diameter.

W. Australia, *Drummond*, 5th Coll. n. 177; and gravelly sides of Konkoberup hills near Cape Riche, *Preiss.* n. 301; Phillips range and Gordon river, *Marwell*.

Some specimens of *Drummond's* n. 109, in fruit only, appear to be a variety very densely branched with very numerous globular heads, and the calyx-lobes more persistent.

68. **M. eriantha**, *Benth.* A bushy shrub, with the aspect nearly of *M. seriata*, but readily distinguished by its hoary foliage and white-tomentose young shoots and inflorescence. Leaves linear-oblong or more or less cuneate, obtuse, thick, obscurely 1-nerved, narrowed at the base, 2 to 4 lines long. Flowers pink, in terminal globular heads, not so dense as in most of the allied species, the rhachis and calyxes covered with a close but dense white tomentum. Calyx-tube ovoid, almost urceolate, about 1 line long; lobes truncate, tomentose at the base, otherwise scarious and often confluent. Petals about 1 line diameter. Staminal bundles 3 to 4 lines long, the claws about as long as the petals, each with 7 to 11 filaments at the end. Ovules not very numerous, erect on a small placenta; stigma small. Fruiting-heads globular, the calyxes not numerous, smooth, about 2 lines long, narrower and more distinct than in the allied species.

W. Australia, *Drummond*, 5th Coll. Suppl. n. 30.

69. **M. subtrigona**, *Schau. in Pl. Preiss. i. 139.* A densely-branched bushy shrub, either low and diffuse, or erect and 3 or 4 ft. high, the young shoots hoary-pubescent or hirsute, the full-grown foliage glabrous or nearly so. Leaves scattered, usually crowded, linear, thick, very obtuse or rarely mucronate, semiterete, mostly 2 to 3 lines long. Flowers small, pink, in small dense terminal globular heads, the axis not growing out until after flowering; the rhachis woolly-tomentose. Calyx-tube glabrous or slightly villous, about 1 line diameter; lobes broad, truncate, scarious, often confluent. Petals about 1 line diameter. Stamens about 3 lines long, shortly united in bundles of 3 to 7. Ovules not very numerous in each cell, erect on a small placenta. Fruiting-calyxes smooth, $1\frac{1}{2}$ to 2 lines diameter, very closely packed in small globular heads.—*M. tuberculata*, *Schau. in Pl. Preiss. i. 139.*

W. Australia, *Drummond* (3rd Coll.), n. 57, 5th Coll. n. 152, 167, 170, 172; King George's Sound to York, *Preiss*, n. 261; low places, Gordon river, *Oldfield*.

70. **M. seriata**, *Lindl. Swan Riv. App.* 8. Branches villous pubescent or glabrous. Leaves scattered, erect or recurved, linear or linear-cuneate, obtuse, narrowed at the base, mostly 3 to 4 lines long, thick but flat, obscurely 1-nerved. Flowers small, red or purple, in dense terminal globular heads, the rachis tomentose or woolly. Bracts very deciduous. Calyx-tube pubescent at the base, about $\frac{3}{4}$ line long; lobes sometimes short, broad, scarious, and more or less confluent, sometimes more ovate and nearly as long as the tube. Petals under 1 line diameter. Staminal bundles 3 to 4 lines long, the claws exceeding the petals, each with 5 to 9 filaments at the end. Ovules not numerous, on a small peltate placenta; stigma small.—*M. Endlicheriana*, *Schau.* in *Pl. Preiss.* i. 134; *M. seriata*, *Lindl.*, and *M. ornata*, *Schau.* l. c. 135.

W. Australia. Swan River and adjoining districts, *Drummond*, 1st Coll. n. 113; *Preiss*, n. 298, 299, 302, 308; Tone and Gordon rivers, *Oldfield*.

M. Wæberi, *Reichb.*, *Schau.* in *Otto and Dietr. Allgem. Gartn.* iii. 167, at least as to *Preiss*'s specimens, n. 317, from the Konkoberup hills towards Cape Riche, quoted *Pl. Preiss.* i. 137, appears to be the same plant, although the staminal claws are said to be shorter with only 3 to 5 filaments, as in *M. subtrigona*.

Metrosideros sororia, *Endl.* in *Hueg. Enum.* 49, is, according to *Schauer*, his *M. Endlicheriana*, of which *Preiss*'s specimens do not differ from *Melaleuca seriata*, but *Endlicher*'s character agrees much better with *Kunzea recurva*.

71. **M. scabra**, *R. Br. in Ait. Hort. Kew. ed.* 2. iv. 414. A bushy shrub, either low and spreading or attaining several ft., with virgate branches, glabrous or hirsute when young. Leaves scattered, usually crowded under the flower-heads, erect, incurved or rarely recurved, linear-terete, semiterete or channelled above, obtuse or acute, thick and nerveless, smooth or tuberculate, $\frac{1}{4}$ to $\frac{1}{2}$ in. long. Flowers red, in dense terminal globular heads, varying considerably in size, the rachis tomentose or hirsute. Bracts striate, very deciduous. Calyx-tube more or less hirsute, $\frac{1}{2}$ to 1 line long; lobes broad, scarious, distinct or confluent. Petals not large, very deciduous. Staminal bundles $\frac{1}{4}$ to nearly $\frac{1}{2}$ in. long, the claws short, each with 7 to 11 or rarely more filaments at the end. Ovules not very numerous, erect on a small placenta; stigma small. Fruiting-heads globular, dense; calyxes truncate, more or less urceolate.—*DC. Prod.* iii. 213; *Sweet, Fl. Austral.* t. 10; *M. parviceps*, *Lindl. Swan Riv. App.* 8; *Schau.* in *Pl. Preiss.* i. 136; *M. Manglesii*, *Schau.* l. c. i. 135.

W. Australia. Lucky Bay, *R. Brown*; from Swan River to the south coast, *Drummond*, 1st Coll. n. 112; *Preiss*, n. 260, 297, 310, 320, 326; *Oldfield*, and others; and eastward to Cape Le Grand, *Maxwell*. *Drummond*'s 3rd Coll. n. 58, has more numerous stamens and long hairs to the calyx; n. 176 has flatter leaves, approaching those of *M. seriata*. In general, several of the foregoing and following species appear almost to pass into this one. In all, the smaller more globular heads have often none but male flowers, with a very small, abortive ovary at the base of the calyx.

72. **M. urceolaris**, *F. Muell. Herb.* A tall bushy shrub, more or less hoary, and often hirsute with spreading hairs, becoming glabrous with age. Leaves scattered, often crowded, linear, semiterete, obtuse or mucronulate, nerveless, mostly about $\frac{1}{2}$ in. long. Flowers yellowish, in dense terminal

globular heads, the axis not growing out till after flowering, the rhachis and calyxes pubescent or villous. Bracts more persistent than in *M. scabra*. Calyx-tube membranous, rather above 1 line long; lobes broad, scarious, often confluent. Petals above 1 line diameter, often ciliate. Staminal bundles 4 to 5 lines long, the claws short and broad, each with 10 to 15 filaments; anthers ovate. Ovules not numerous in each cell, erect on a small peltate placenta. Fruiting-calyxes urceolate-globular, very smooth, 2 to nearly 3 lines diameter, not numerous, but closely packed in a globular head. Seeds obovoid-cuneate; cotyledons broad, more or less folded.

W. Australia. Murchison river, *Oldfield*; *Drummond*, 6th Coll. n. 73.

Var. *virgata*. Scarcely villous. Branches elongated with less crowded leaves. Flowers rather smaller.—*Drummond*, 6th Coll., n. 71.

The species differs from *M. scabra* chiefly in the colour of the flowers.

73. **M. trichophylla**, *Lindl. Swan Riv. App.* 8. Very spreading or sometimes prostrate, often extending to several ft., either hirsute with fine spreading hairs, especially the young shoots, or quite glabrous. Leaves scattered, crowded, especially under the flower-heads, linear-terete, slender, obtuse or almost acute, $\frac{1}{4}$ to $\frac{1}{2}$ in., or in other specimens $\frac{1}{3}$ to 1 in. long, smooth or tuberculate. Flowers usually but not always larger than in *M. scabra*, pink, in dense terminal globular heads, the axis not growing out till after flowering, the rhachis and calyxes tomentose or villous. Bracts very deciduous or rarely persistent at the time of flowering. Calyx-tube under 1 line long; lobes scarious, ovate or oblong, usually longer than the tube, but very irregular in size, and often more or less confluent. Petals not much longer than the calyx-lobes. Staminal bundles about $\frac{1}{2}$ in. long, claws narrow, exceeding the petals, with 3 to 9 filaments at the end; anthers small. Ovules not very numerous, on a small peltate placenta; stigma small. Fruiting-calyxes either capitate, or two or three together, smooth, truncate, 2 to 3 lines diameter.—*Schau. in Pl. Preiss. i.* 136; *M. eremæa*, *F. Muell. Fragm. iii.* 114.

W. Australia. Swan River, *Drummond*, 1st Coll.; Murchison river and Champion Bay, *Oldfield*.—Very near *M. scabra*, differing chiefly in the more slender leaves and longer calyx-lobes.

74. **M. holosericea**, *Schau. in Pl. Preiss. i.* 139. A bushy shrub of 2 to 3 ft., the branches and foliage hoary-tomentose or sometimes silky-villous. Leaves scattered, crowded, linear, terete or semiterete, acute or obtuse, $\frac{1}{4}$ to $\frac{1}{2}$ in. long or more on the principal branches. Flowers (pink?) in dense terminal globular heads, the axis not growing out till after flowering; rhachis and calyxes tomentose-villous. Calyx-tube campanulate, scarcely 1 line long; lobes broad, scarious, often confluent. Petals about 1 line diameter. Staminal bundles about 4 lines long, the claws often exceeding the petals, with 5 to 11 filaments at the end. Ovules not very numerous, erect on a small peltate placenta.

W. Australia. Swan River, *Drummond*, 1st Coll. n. 111; sandy plains near Quangen, *Preiss. n.* 315; Dirk Hartog's Island, *Marten*.

75. **M. squamea**, *Labill. Pl. Nov. Holl. ii.* 28. t. 168. A shrub (or tree?), the young shoots more or less villous, with soft loose hairs, at length glabrous. Leaves scattered, numerous, usually spreading, from ovate-lanceo-

late to almost linear, acute or acuminate, flat or concave, distinctly 3-nerved, mostly about $\frac{1}{4}$ in. and rarely $\frac{1}{2}$ in. long. Flowers rather small, reddish-purple white or yellowish, in small globular terminal heads, the axis not growing out until after flowering, the rhachis and calyxes villous. Bracts acuminate, deciduous, or a few external ones more persistent. Calyx-tube ovoid, about 1 line long; lobes much shorter, very obtuse. Petals under 1 line long. Stamens about 3 lines long, very shortly united in bundles of 5 to 9. Ovules rather numerous in each cell, erect on a small placenta. Fruiting calyxes often considerably enlarged, more or less urceolate, in a globular head. —DC. Prod. iii. 213; Hook. f. Fl. Tasm. i. 128; Bot. Reg. t. 477; Lodd. Bot. Cab. t. 412.

N. S. Wales. Near Appin, *Backhouse*.

Victoria. In the Grampians and on the Glenelg, *F. Mueller*.

Tasmania. Huon river and Port Dalrymple, *R. Brown*; very common in peaty soil in many parts of the colony, ascending to 4500 ft., *J. D. Hooker*.

S. Australia. Mount Gambier, at the S.E. extremity, *F. Mueller*.

76. **M. densa**, *R. Br. in Ait. Hort. Kew. ed. 2. iv. 416*. A bushy rigid shrub, usually glabrous, except the inflorescence. Leaves scattered or in irregular whorls of three, ovate, concave, spreading or recurved, obtuse, 2 or rarely 3 lines long, rigid and more or less prominently 1- or 3-nerved. Flowers small, in ovoid oblong or rarely globular terminal heads, the axis soon growing out into a leafy shoot; the rhachis woolly or nearly glabrous. Bracts broad, often herbaceous. Calyx-tube broadly campanulate; lobes rounded, more or less scarious, nearly as long as the tube. Petals about 1 line diameter. Staminal bundles scarcely above 2 lines long, the claws rarely exceeding the petals, each with 3 to 7 filaments at the end; anthers small. Ovules not very numerous in each cell, erect on a small placenta; style long with a small stigma. Fruiting spike ovoid or cylindrical, dense, $\frac{1}{2}$ to 1 in. long. —DC. Prod. iii. 215; Schau. in Pl. Preiss. i. 144; *M. propinqua*, Schau. l. c.; *M. epacridioides*, Turcz. in Bull. Mosc. 1847, i. 165.

W. Australia. King George's Sound and adjoining districts, *R. Brown*, *Menzies*, *A. Cunningham*, *Baxter*, *Drummond*, 3rd Coll. n. 46, 5th Coll. n. 149, *Preiss*, n. 285, 286, 288, *Oldfield*, *Maxwell*.

In luxuriant shoots the leaves are occasionally longer and broader, attaining even 4 lines. In some garden specimens they are longer and more acute. In *Preiss*'s specimens of *M. propinqua* they are rather smaller but not otherwise different. In *Drummond*'s 5th Coll. n. 167, they are all narrow and regularly in 6 rows, in n. 166 of the same Coll. all very spreading, rigid, and squarrose, almost like those of *M. elachophylla*.

77. **M. thymoides**, *Labill. Pl. Nov. Holl. ii. 27. t. 167*. A tall shrub, usually glabrous, the branchlets rigid but slender, virgate or divaricate, and often spinescent. Leaves scattered, from linear-lanceolate to oblong-elliptical or almost ovate, rigid, usually acute, narrowed at the base, flat, 3- or 5-nerved, $\frac{1}{4}$ to $\frac{1}{2}$ in. long. Flowers yellowish-white, in dense terminal globular heads, the axis rarely growing out until after flowering, the rhachis usually tomentose or woolly. Bracts deciduous. Calyx-tube pubescent, broadly campanulate, about $\frac{1}{2}$ line long; lobes broad, membranous, but more or less distinctly 3-nerved in the centre. Petals striate in the centre. Staminal bundles 3 to 4 lines long, the claws as long as or exceeding the petals, with 5 to 9 filaments at the end; anthers very small. Ovules not

very numerous in each cell, and sometimes very few, erect on a small placenta.—DC. Prod. iii. 213; Schau. in Pl. Preiss. i. 140; *M. spinosa*, Lindl. Swan Riv. App. 8; Schau. in Pl. Preiss. i. 140.

W. Australia. King George's Sound, *R. Brown* and others, and thence to Swan River, *Drummond*, 1st Coll., 3rd Coll. n. 44; *Preiss*, n. 280, 281, 282, 283, and others, and eastward to West Mount Barren, *Maxwell*, Vasse and Tone rivers, *Oldfield*. The spinescent branches are a very uncertain character, both in the Swan River and in the King George's Sound specimens.

78. ***M. striata***, *Labill. Pl. Nov. Holl.* ii. 26. t. 165. A tall and bushy or low and straggling shrub, the young shoots silky, at length glabrous. Leaves alternate, lanceolate or linear, acute and often pungent-pointed, flat, 3- or 5-nerved, sometimes all under $\frac{1}{2}$ in. long and very thick and rigid, sometimes narrower and above $\frac{1}{2}$ in. Flowers pink (or sometimes white?), in dense oblong or cylindrical terminal spikes, the axis not growing out until after flowering, the rhachis and calyxes woolly. Calyx tube broad, about 1 line diameter; lobes very short and broad. Petals about 1 line diameter. Staminal bundles 5 to 6 lines long, the claws longer than the petals, each with 7 to 11 filaments at the end; anthers small. Ovules not very numerous, on a broad shortly bifid placenta. Fruiting spikes cylindrical, very dense, rarely above 1 in. long, the calyxes $1\frac{1}{2}$ to 2 lines long.—DC. Prod. iii. 212; *M. Fraseri*, Hook. Bot. Mag. t. 3210.

W. Australia. King George's Sound and adjoining districts, *Labillardière*, *R. Brown*, *Fraser*, *Drummond*, 3rd Coll. n. 53, and others, and eastward to Young river, and Orleans Bay, *Maxwell*. This species sometimes comes near to *M. pentagona*, but differs in its oblong or cylindrical spikes.

79. ***M. polygaloides***, *Schau. in Pl. Preiss.* i. 142. Glabrous or the young shoots pubescent or silky. Leaves scattered or in whorls of 3, those on the main branches oblong or lanceolate, acute, flat, 1- or 3-nerved, and often $\frac{1}{2}$ in. long, on the smaller branches linear or linear-lanceolate, about $\frac{1}{4}$ in. long, or all narrow and $\frac{1}{4}$ to $\frac{1}{2}$ in., flat or concave and almost nerveless. Flowers small, white, in dense ovoid or cylindrical terminal spikes, rarely exceeding $\frac{1}{2}$ in., the axis not growing out in any of our specimens, the rhachis and calyxes pubescent. Bracts often persistent. Calyx-tube campanulate, scarcely 1 line diameter; lobes short, obtuse. Petals about $\frac{1}{2}$ line diameter. Stamens not above 2 lines long, shortly united in bundles of 7 to 11. Ovules not numerous, erect on a small placenta; style long, with a small stigma. Fruiting spikes dense, cylindrical, $\frac{1}{2}$ to $\frac{3}{4}$ in. long, but not seen quite ripe.

W. Australia. Swan River, *Collie*, *Drummond*, 1st Coll. and 3rd Coll. n. 45; Kalgan river, *Oldfield*. *Preiss*'s specimens in bud only, n. 327, certainly are conspecific with *Drummond*'s, but the fruiting ones, n. 328, though in a very imperfect state, appear to be different.

80. ***M. incana***, *R. Br. in Bot. Reg.* t. 410. A tall shrub, the branches often tortuous or spreading, more or less hoary-tomentose or pubescent. Leaves scattered or irregularly opposite or in whorls of three, very spreading, often crowded, linear or lanceolate, mostly acute, rather rigid but often incurved, $\frac{1}{4}$ to $\frac{1}{2}$ in. long, 1- or 3-nerved, becoming sometimes glabrous with age, but usually hoary, especially underneath. Flowers rather small, yellowish-white, in dense terminal ovoid or oblong spikes, the axis rarely grow-

ing out until after flowering, the rhachis pubescent. Calyx-tube glabrous or pubescent, broadly campanulate, about 1 line diameter; lobes broad, about half as long as the tube. Petals about 1 line diameter. Stamens 3 to 4 lines long, shortly united in bundles of 3 to 9. Ovules not very numerous, erect on a short placenta. Fruiting spikes dense, cylindrical, $\frac{3}{4}$ to 1 in. long.—DC. Prod. iii. 215; Schau. in Pl. Preiss. i. 141; *M. canescens*, Link and Otto, Pl. Sel. Hort. Berol. 81. t. 37; *M. tomentosa*, Colla, Hort. Ripul. 87. t. 37; *M. hypochondriaca*, Dehnh. according to Schau.

W. Australia. King George's Sound, *R. Brown, Wakefield*; towards Cape Riche and Canning river, *Preiss*, n. 262, 266, 329, *Drummond*, 3rd Coll. n. 46, and 2nd Coll. n. 63; Vasse river, *Oldfield*.

81. **M. nodosa**, *Sm. in Trans. Linn. Soc.* iii. 276, and *Exot. Bot.* t. 35. A tall shrub or small tree. Leaves alternate, linear or subulate, rigid, pungent-pointed, mostly $\frac{1}{2}$ to $\frac{3}{4}$ in., or on luxuriant shoots nearly 1 in. long. Flowers in small dense globular or rarely ovoid axillary or terminal heads, the axis not growing out until after flowering, the rhachis tomentose. Calyx-tube broadly campanulate, about $\frac{3}{4}$ line long; lobes much shorter, obtuse, and petal-like. Petals about as long as the calyx-lobes. Staminal bundles about 3 lines long, the claws about as long as the petals, with 3 to 6 or rarely more filaments at the end. Ovules not very numerous, erect on a small placenta. Fruiting-heads very dense, globular, 3 to 4 lines diameter, the calyxes truncate.—DC. Prod. iii. 213; Vent. Jard. Malm. t. 112; *Metrosideros nodosa*, Gærtn. Fruct. i. 172. t. 34; Cav. Ic. iv. t. 334; *Melaleuca juniperina*, Sieb.; Reichb. Iconogr. Exot. ii. 4. t. 112; *M. juniperoides*, DC. Prod. iii. 213; *Metrosideros juniperina* and *M. pungens*, Reichb. in Spreng. Syst. Cur. Post. 194.

Queensland. Moreton Bay, *W. Hill*.

N. S. Wales. Port Jackson to the Blue Mountains, *R. Brown, Sieber*, n. 316, 317, and others; Clarence river, *Becker*.

Of the numerous small flower-heads in this species the great majority appear to consist of deciduous flowers, made by abortion.

M. tenuifolia, DC. Prod. iii. 213, described from fruiting specimens which I have not seen, is probably, from the characters given, a variety of *M. nodosa* with longer leaves.

82. **M. pungens**, *Schau. in Pl. Preiss.* i. 138. A shrub of several ft., the young shoots more or less pubescent. Leaves alternate, spreading, linear-subulate, terete, rigid, with a straight, often pungent point $\frac{1}{2}$ to 1 in. long. Flowers yellowish-white, rather small, in dense ovoid oblong or rarely globular terminal spikes, the axis not growing out until after flowering, the rhachis tomentose or woolly. Calyx-tube pubescent or hirsute, campanulate, under 1 line long; lobes short, broad, scarious, usually ciliate. Petals scarcely 1 line long. Staminal bundles about 3 lines long or rather more, the claws short, each with about 7 filaments at the end; anthers not larger than in *Beaufortia*, but distinctly versatile. Ovules very few in each cell, erect on a small placenta; stigma small. Fruiting spikes dense, oblong or cylindrical, the calyxes not attaining 2 lines.

W. Australia, *Drummond*, 1st Coll. n. 115, 5th Coll. n. 146; barren gravelly places near Mount Barrow, *Preiss*, n. 316; Kalgan river ranges and East Mount Barren, *Marxwell* (with shorter leaves, rounder flower-heads, the rhachis less woolly); Fitzgerald flats, *Marxwell* (with thicker leaves).

Var. *obtusifolia*. Leaves more crowded, mostly obtuse. Flowers longer, yellow, in very dense and oblong spikes. *Drummond*, 5th Coll. n. 148; West Mount Barren, *Marwell*.
The species often approaches *M. pentagona*, on the one hand, or *M. nodosa* on the other.

83. **M. ericifolia**, *Sm. in Trans. Linn. Soc.* iii. 276, and *Exot. Bot. t.*
34. A shrub or tree, attaining sometimes a considerable height, usually glabrous and often glaucous, with virgate branchlets. Leaves scattered, numerous, often recurved, narrow-linear, semiterete or convex underneath, obtuse or scarcely acute, rarely above $\frac{1}{2}$ in. long. Flowers yellowish-white or rarely red, not large, (the males?) in ovoid or nearly globular terminal heads, or the perfect ones in oblong and cylindrical spikes of $\frac{1}{2}$ to 1 in., with the axis soon growing out into a leafy branch, the rachis tomentose. Calyx glabrous or nearly so, short, broad, with short, broad, obtuse, herbaceous lobes. Petals above 1 line long. Staminal bundles 3 to 4 lines long, the claws exceeding the petals, each with about 7 filaments at the end. Ovules rather numerous in each cell, on a short peltate placenta. Fruiting spikes compact; calyxes truncate.—*DC. Prod.* iii. 213; *Hook. f. Fl. Tasm.* i. 129; *M. nodosa*, *Sieb. Pl. Exs.*, not of *Sm.*; *M. Gunniana*, *Schau. in Walp. Rep.* ii. 928; *M. heliophila*, *F. Muell.*; *Miq. in Ned. Kruidk. Arch.* iv. 120 (from the character given).

N. S. Wales. Port Jackson to the Blue Mountains, *R. Brown*, *Sieber*, n. 318, and others; Lord Howe's Island, rare, on rocks facing the sea, *Milne*.

Victoria. On the Yarra and Goulburn rivers and Dandenong mountains, *F. Mueller*.

Tasmania. Port Dalrymple and islands of Bass's Straits, *R. Brown*. Abundant, especially in swampy ground in the northern parts of the colony, the *Swamp Tea-tree* of the colonists, *J. D. Hooker*.

Var. *erubescens*. Flowers red. Stamens usually more numerous.—*M. erubescens*, *Otto*, *Hort. Berol.* 37, according to *DC. Prod.* i. 214. *M. diosmifolia*, *Dum. Cours.* according to *DC. l. c.*—Port Jackson, Paramatta, *Woolfs*.

84. **M. viminea**, *Lindl. Swan Riv. App.* 8. A tall glabrous shrub, with virgate branches. Leaves scattered, erect or recurved, narrow linear, flat or convex underneath, with a recurved point or almost obtuse, $\frac{1}{4}$ to $\frac{1}{2}$ in. long. Flowers small (white?), in terminal globular heads and mostly males, or the perfect ones in oblong-cylindrical spikes, the axis not growing out till after flowering, the rachis and calyxes glabrous. Calyx-tube broadly campanulate, rather thin, under 1 line diameter; lobes short. Petals under 1 line long. Staminal bundles 2 to 3 lines long, the claws exceeding the petals, each with 7 to 11 or rather more filaments at the end; anthers small. Ovules rather numerous, on a small peltate placenta. Fruiting spikes cylindrical, rather dense or interrupted, the calyxes about $1\frac{1}{2}$ lines diameter.—*Schau. in Pl. Preiss.* i. 142; *M. Lehmanni*, *Schau. l. c.*

W. Australia. Swan River, *Drummond*, 1st Coll. and n. 109; *Preiss*, n. 291, 292.

Var. *major*. Leaves rather broader. Flowers larger.—Swan River, Port Gregory, and Champion Bay, *Oldfield*.

M. hamulosa, *Turcz.* above n. 46, closely resembles this species, but the spikes are all cylindrical and above 1 in. long.

85. **M. microphylla**, *Sm. in Rees Cyclop.* xxiii. A glabrous spreading shrub, very closely allied to *M. viminea* and *M. hamulosa*, but with the foliage of *M. blæriæfolia*. Leaves scattered, spreading or recurved, rather crowded and all nearly of the same size, linear, semiterete or rather thick, obtuse,

about 3 lines long. Flowers white in cylindrical spikes, terminating short lateral branches or the males in ovoid heads. Calyx-tube broad, about 1 line diameter; lobes short. Petals 1 line long. Staminal bundles 3 to 4 lines long, the claws exceeding the petals, each with 11 to 15 or more filaments at the end. Ovules numerous, on a peltate placenta.—*M. brachyphylla*, Schau. in Pl. Preiss. i. 141; *M. tenuissima*, Tausch. in Flora, 1846, 411, according to Schau.; *M. brevifolia*, F. Muell. Fragm. i. 116.

W. Australia. King George's Sound and adjoining districts, *Menzies*, *Preiss*, n. 255, *Marwell*, *Oldfield*.

A fruiting specimen from Menzies, in Herb. R. Br., has the calyxes very much enlarged with thickened obtuse warted lobes, the whole spike very dense and above $\frac{1}{2}$ in. diameter; but this may be abnormal.

86. **M. tenella**, *Benth.* A shrub of about 4 ft., with slender branches, glabrous or minutely pubescent. Leaves scattered or in whorls of 3, narrow-linear, incurved or spreading, flat or concave, acute or almost obtuse, obscurely 1-nerved, 2 to 3 lines long. Flowers small (white?), in globular, oblong, or shortly cylindrical terminal spikes, the axis not growing out until after flowering, the rhachis pubescent or nearly glabrous. Calyx-tube campanulate, scarcely 1 line diameter. Stamens about 2 lines long, very shortly united in bundles of 3, 4 or rarely 5. Ovules not very numerous, erect on a small peltate placenta; style rather thick; stigma not dilated.

W. Australia. Moist soil, tributaries of Phillips River, *Marwell*.

87? **M. leiopyxis**, *F. Muell. Herb.* A spreading shrub of 2 to 3 ft., glabrous except the inflorescence. Leaves linear-oblong, obtuse, flat, thick, rigid, nerveless, $\frac{1}{4}$ to $\frac{1}{2}$ in. long. Flowers not seen. Fruiting-calyxes 2 to 4 together on a short pubescent or woolly rhachis, thick and smooth, attached by the broad base, fully 3 lines diameter, truncate at the top.

W. Australia. Limestone Hills, Murchison river, *Oldfield*.

88. **M. pustulata**, *Hook. f. in Hook. Lond. Journ.* vi. 476, and *Fl. Tasm.* i. 129. A glabrous bushy shrub, varying from 2 or 3 ft. to twice that height. Leaves scattered, often crowded, from elliptical-oblong or lanceolate to linear or linear-cuneate, obtuse, thick, concave, nerveless, mostly 2 to 3 lines long, but in some specimens all under 2 lines. Flowers small, not numerous, in small terminal leafy heads, the axis soon growing out into a leafy shoot, the rhachis and calyx glabrous. Calyx-tube ovoid, about 1 line long; lobes nearly as long, lanceolate. Petals about 1 line. Staminal bundles not exceeding 3 lines, the claws longer than the petals, each with 15 to 20 filaments at the end. Ovules rather numerous in each cell, erect on a short peltate or bifid placenta. Fruiting-calyxes very few in the spike, not much enlarged, crowned by the persistent lobes.—*M. halmaturorum*, *F. Muell.*; *Miq.* in *Ned. Kruidk. Arch.* iv. 122.

N. S. Wales. Darling river, *Neilson*.

Victoria. Wimmera, *Dallachy* (with much shorter stamens).

Tasmania. Oyster Bay and on a tributary of the South-Esk river, *Gunn*.

S. Australia. St. Vincent's Gulf, *Whittaker*, *F. Mueller*; Kangaroo Island, *Waterhouse*.

89. **M. acerosa**, *Schau. in Pl. Preiss.* i. 137. An erect bushy shrub of several ft., loosely silky-hairy or at length glabrous. Leaves scattered,

crowded, spreading or incurved, narrow-linear, flat or concave, rather thick, acute or obtuse, under $\frac{1}{2}$ in. long. Flowers (yellowish-white?) rather small in terminal globular heads, especially the males, the perfect ones fewer in the head and often reduced to 5 or 6, the axis not growing out till after flowering, the rhachis woolly-tomentose. Calyx-tube ovoid, about 1 line long; lobes scarious, broad, truncate and often confluent. Petals scarcely 1 line diameter, so deciduous as rarely to be seen except in the young bud. Stamens 3 to 4 lines long, very irregularly united in bundles of about 7 to 11; anthers ovoid. Ovules not numerous, erect on a small placenta. Fruiting-calyxes usually 2 or 3 only together, very smooth, about 2 lines diameter.

W. Australia. Swan River, *Fraser, Drummond, 1st Coll. and n. 52, Preiss, n. 263.*

Var. *bracteata*. Bracts larger and more persistent.—*M. bisulcata*, F. Muell. Fragm. iii. 118. Murchison river, *Oldfield*.

90. **M. pauperiflora**, *F. Muell. Fragm. iii. 116.* A shrub of 4 to 6 ft., the young shoots pubescent. Leaves scattered, linear, rather thick, semiterete or nearly terete, acute or almost obtuse, nerveless, mostly 3 to 4 lines long. Flowers (pink or white?) in small terminal heads of about 6, the axis not growing out until after flowering, the rhachis pubescent. Bracts short, imbricate. Calyx-tube glabrous, ovoid, above 1 line long; lobes small, distinct, with scarious margins. Petals scarcely 1 line long. Stamens 2 to 3 lines, very shortly united in bundles of 7 to 12. Ovules rather numerous in each cell, erect on a small peltate placenta; stigma small. Fruiting-calyxes globular, smooth, about 2 lines diameter.

W. Australia, *Drummond, 5th Coll. n. 154, 158; Phillips Range, Maxwell.*

91. **M. aspalathoides**, *Schau. in Pl. Preiss. i. 140.* A rigid shrub of about 2 ft., the young branches and foliage white with a close, dense, silky tomentum. Leaves scattered, crowded, subulate, terete, not rigid, about $\frac{3}{4}$ in. long. Flowers few together. Calyx-tube white-tomentose, about 1 line long; lobes rather longer, narrow and apparently persistent. Staminal bundles (3 or 4 lines long?) the claws as long as the calyx-lobes, each with 7 to 9 filaments.

W. Australia. York district and Quangen Plains, *Preiss, n. 2425 and 2426.* The only specimens seen (in Herb. Sonder) are very incomplete, but the species appears to be quite distinct from *M. incana* or *M. holosericea*, both of which have white-tomentose foliage.

SERIES VII. PELTATÆ.—Leaves opposite or alternate, very small, often scale-like, more or less peltately attached and closely appressed to the branch, or the upper end spreading. Flowers small, in dense heads or spikes.

92. **M. deltoidea**, *Benth.* Glabrous. Leaves opposite, ovate-triangular acute or obtuse, spreading, but thick and more or less peltately attached in the middle of their broad dilated base, mostly 1 to $1\frac{1}{2}$ lines long. Flowers rather small (pink or white), in globular or ovoid terminal heads, the axis soon growing out into a leafy shoot, the rhachis and calyxes glabrous. Calyx-tube ovoid, about $\frac{3}{4}$ line diameter; lobes very short and broad and rather thick. Petals about $\frac{1}{2}$ line diameter. Staminal bundles 2 to 3 lines long, the claws shorter or rather longer than the petals, each with 5 to 9 filaments at the end. Ovules few in each cell, erect, on a small placenta; stigma small. Fruiting-calyxes in globular clusters, each about 2 lines diameter.

W. Australia, *Drummond*, 5th Coll. n. 151; Phillips Range, *Marwell*, in *Herb. Oldfield*.

93. **M. minutifolia**, *F. Muell. in Trans. Phil. Soc. Vict.* iii. 45. Nearly allied to *M. tamariscina*, but the branchlets are much more slender and not excavated. Leaves opposite, scale-like, appressed and imbricate, almost stem-clasping and peltately attached near the base, ovate or ovate-lanceolate, acutely acuminate, $\frac{1}{2}$ to nearly 1 line long. Flowers small, in small ovoid terminal heads, the rhachis woolly. Calyx-tube broad, about $\frac{1}{2}$ line long; lobes about as long, broad, striate. Petals nearly 1 line long. Staminal bundles about 3 lines long, the claws narrow, nearly twice as long as the petals, each with 7 to 11 filaments at the end; anthers very small. Fruiting-spikes short, the calyxes globular, truncate, about $1\frac{1}{2}$ lines long.

N. Australia. Victoria river, *F. Mueller*.

Queensland (?). Flinders river, *Bowman*.

94. **M. foliolosa**, *A. Cunn. Herb.* Branchlets very numerous, erect and slender, excavated for the leaves, the margins of the excavations forming a fringe round them. Leaves opposite, scale-like, broad, thick, obtuse, triquetrous, peltately attached, closely appressed and imbedded in the excavations, scarcely 1 line long. Flowers only seen in very young bud, few, in terminal heads. Calyx campanulate, with short broad striate lobes. Petals striate. Stamens in bundles of 15 to 20, the claws already as long as the petals. Stigma rather broad. Fruiting-calyxes few in the head or solitary, globular, about 2 lines diameter.

Queensland. Cape Flinders, *A. Cunningham*.

95. **M. micromera**, *Schau. in Pl. Preiss.* i. 146. A tall shrub, with very numerous short slender branches, covered with a short close white tomentum, often concealed by the minute leaves. Leaves mostly in whorls of 3, closely appressed, ovate, scale-like, but thick, peltately attached, rarely above $\frac{1}{2}$ line long. Flowers, at least the males, small, in globular terminal heads, the axis soon growing out into a leafy shoot. Calyx-tube campanulate, membranous, nearly 1 line long, the lobes very short. Petals about $\frac{1}{2}$ line long. Stamens 1 line long or rather more, in bundles of 5 to 9. Ovary not seen. Fruiting-heads dense, globular, 4 to 6 lines diameter, the calyxes open, $1\frac{1}{2}$ to 2 lines diameter, the disk much thickened opposite the persistent lobes; capsule convex, on a level with the calyx; style persistent, with a peltate stigma. Seeds rather numerous in each cell, erect.

W. Australia, *Drummond*, 3rd Coll. n. 49; gravelly places, Wariup hills, Goodrich district, rare, *Preiss*, n. 183 a.

96. **M. thyoides**, *Turcz. in Bull. Mosc.* 1847, i. 167. A tall shrub, with numerous small slender branchlets, usually whitish, but glabrous or nearly so. Leaves spirally arranged, scale-like, closely appressed and imbricate, thick, peltate and concave, very obtuse and scarcely $\frac{1}{2}$ line long on the smaller branchlets, more distant, acuminate, and nearly 1 line long on the longer branches. Flowers whitish, in ovoid globular or oblong heads, terminal or the axis very soon growing out into a leafy shoot. Calyx-tube ovoid-campanulate, about $\frac{3}{4}$ line long or shorter and broader in the males, with very short and broad lobes. Petals $\frac{1}{2}$ to $\frac{3}{4}$ line diameter. Staminal bundles 2 to

nearly 3 lines long, the claws exceeding the petals, each with 5 to 9 filaments at the end. Stigma dilated. Fruiting calyxes truncate, in some specimens about $1\frac{1}{2}$ lines diameter, in not very compact globular heads, in others 2 lines diameter, in very dense oblong spikes, in others again still larger and only 2 or 3 together. Cotyledons very broad and folded.—*M. cupressina*, F. Muell. Fragn. iii. 114.

W. Australia, Drummond, 3rd Coll. n. 48, also n. 57, and n. 169; Phillips Ranges, Marwell; seashore, Sharks' Bay, Milne (doubtful, the specimens in leaf only).

97. **M. tamariscina**, Hook. in Mitch. Trop. Austr. 262. Branchlets numerous, slender and excavated for each leaf as in *M. foliolosa*, but in a rather less degree. Leaves scarcely opposite, scale-like, peltate and half stem-clasping, closely appressed and half immersed in the excavations, ovate, concave, rarely above $\frac{1}{2}$ line long, the lower ones of each branchlet very obtuse, the upper ones often acuminate. Flowers not seen. Fruiting-spikes oblong or cylindrical, $\frac{1}{2}$ to 1 in. long, the calyxes often densely packed, globular, about $1\frac{1}{2}$ lines diameter.

Queensland. Belyando river, Mitchell.

23. CONOTHAMNUS, Lindl.

Calyx-tube campanulate, adnate to the ovary at the base, the free part broad; lobes 5, short, imbricate or open. Petals 5, orbicular, spreading or none. Stamens indefinite, collected in clusters or united in bundles opposite the petals or alternating with the calyx-lobes; anthers versatile, the cells parallel, opening longitudinally. Ovary semi-inferior, enclosed in the calyx-tube, villous, 3-celled, with one ovule in each cell; style filiform, with a small stigma. Capsule enclosed in the hardened and somewhat enlarged calyx, but often nearly free, within or separable from it, opening loculicidally in 3 valves. Seeds ovate or obovate (not seen ripe).—Shrubs, with the habit of *Melaleuca*. Leaves opposite, small, 1- or 3-nerved, rigid. Flowers in terminal globular heads.

The genus is limited to Western Australia, and only differs from *Melaleuca* in the ovules solitary in each cell, as in *Beaufortia*, whilst the anthers are those of *Melaleuca*.

Leaves $\frac{1}{2}$ to 1 in. long, 3-nerved. Petals 5. Stamens united in 5 bundles.	1. <i>C. trinervis</i> .
Leaves 2 to 4 lines long, 1-nerved. Petals 0. Stamens collected in 5 clusters, but not united	2. <i>C. divaricatus</i> .

1. **C. trinervis**, Lindl. Swan Riv. App. 9. A very rigid spreading shrub, of 2 to 3 ft., the young shoots and inflorescence softly villous. Leaves lanceolate, oblong or oblanceolate, very rigid, pungent-pointed, narrowed at the base, prominently 3-nerved, $\frac{1}{2}$ to 1 in. long. Flowers rather large (white?), in dense globular or ovoid terminal heads, the axis growing out after flowering into a leafy shoot, the rhachis and calyxes villous or woolly. Bracts rather large, broadly ovate, very deciduous. Calyx-tube above 1 line diameter, the lobes obtuse, scarious only at the margins. Petals above 1 line diameter, obscurely striate in the centre, with scarious margins. Stamens about 4 lines long, united to about the middle in bundles of 7 to 11 each. Ovary almost free within the calyx-tube. Capsule also entirely enclosed

within the tube. Seeds solitary in each cell, oblong-triquetrous, erect, but not seen quite ripe.—Schau. in Pl. Preiss. i. 147; *Melaleuca cuspidata*, Turcz. in Bull. Mosc. 1862, ii. 327.

W. Australia. Swan River, *Drummond*, 1st Coll.; *Preiss*, n. 2639; sand plains near Cabingoug, Murchison river, *Oldfield*.

2. **C. divaricatus**, *Benth.* A low shrub, with opposite, rigid, divaricate, almost spinescent branches, hoary or silky-pubescent, as well as the foliage. Leaves ovate or ovate-lanceolate, obtuse, rigid, 1-nerved and transversely veined, 2 to 3 or rarely 4 lines long. Flowers small, in small dense globular heads terminating the smaller branchlets, the axis not growing out until after flowering, the rhachis and calyxes villous. Bracts rather large, broad, imbricate, but very deciduous. Calyx-tube membranous, above $\frac{1}{2}$ line long; lobes short, scarious. Petals none. Stamens about $1\frac{1}{2}$ lines long, quite distinct, but collected in clusters of about 3, alternating with the calyx-lobes. Ovules solitary in each cell and peltate. Fruiting-calyxes about $1\frac{1}{2}$ lines diameter, in dense globular heads; capsule enclosed in the calyx-tube, but readily separable from it. Seeds ovoid, but not seen perfect.

W. Australia, *Drummond*, 5th Coll. n. 147.

SUBTRIBE III. BEAUFORTIÆ.—Leaves opposite or scattered, small or narrow and coriaceous, 1- or several-nerved. Flowers closely sessile and solitary in the axils of the floral leaves and bracts. Stamens indefinite, united in bundles opposite the petals or rarely free; anthers erect, attached at the base, the dehiscence various. Ovules 1 or more in each cell of the ovary. Embryo straight or slightly curved, the cotyledons longer than the radicle.

This subtribe differs from the *Euleptospermeæ* chiefly in the anthers.

24. BEAUFORTIA, R. Br.

(*Schizopleura*, *Lindl.*)

Calyx-tube ovoid or campanulate, adnate to the ovary at the base, the free part erect, contracted or rarely dilated; lobes 5, herbaceous or with scarious margins. Petals 5, spreading. Stamens indefinite, longer than the petals, united in 5 distinct bundles opposite the petals, the filaments or free parts filiform; anthers very small, erect, the cells parallel, opening at the top in 2 valves, the outer valve of each cell usually larger and often deciduous. Ovary enclosed in the calyx-tube, inferior or half-superior, the convex summit villous, with a central depression round the style, 3-celled, with 1 perfect ovule in each cell, peltately attached to the centre of a peltate placenta, with the addition sometimes of 2 imperfect ovules, erect at the top of the placenta, and concealed under the perfect one; style filiform, with a small stigma. Capsule enclosed in the enlarged and hardened calyx-tube, opening loculicidally in 3 valves. Seeds, where known, solitary in each cell, attached by their inner face, with a thin testa; embryo straight; cotyledons flat or plano-convex, much longer than the radicle.—Rigid, often heath-like shrubs, glabrous or pubescent. Leaves opposite, or in one species scattered, small, rigid, 1- or several nerved. Flowers usually red, closely sessile, solitary within each bract, in dense heads or short spikes, either terminal or at the base of the new branch

formed by the growing out of the central axis. Bracts membranous, usually very deciduous; bractcoles small.

This genus is confined to Western Australia. It is closely allied to *Melaleuca*, with the habit and foliage of the smaller-leaved species of that genus, and only differs in the anthers and ovules. As in *Melaleuca*, the flowers are often more or less unisexual, the males usually in smaller more globular heads, the female or hermaphrodite heads more oblong.

Staminal bundles above $\frac{1}{2}$ in. long, the claw much longer than the free part of the filaments.

Leaves scattered 1. *B. sparsa*.

Leaves all opposite.

Leaves ovate or orbicular, usually recurved or spreading.

Petals not exceeding the narrow calyx-lobes. Outer valve of the anther-cells conical 2. *B. decussata*.

Petals narrow, twice as long as the calyx-lobes. Anther-valves orbicular, ciliate 3. *B. squarrosa*.

Petals broad, shortly exceeding the calyx-lobes, unequal. Anther-valves orbicular.

Leaves small, orbicular. Staminal bundles not very unequal 4. *B. orbifolia*.

Leaves ovate or ovate-lanceolate. Inner staminal bundles half the size of the outer ones 5. *B. anisandra*.

Leaves narrow-lanceolate or linear.

Calyx-lobes narrow, as long as or longer than the tube . . . 6. *B. macrostemon*.

Calyx-lobes triangular, much shorter than the tube 7. *B. cyrtodonta*.

Staminal bundles under $\frac{1}{2}$ in. long, the claw shorter or scarcely longer than the free part of the filaments.

Leaves lanceolate linear or triquetrous, mostly 3 lines long or more.

Leaves mostly linear. Calyx-lobes triangular, shorter than the tube 8. *B. Schaueri*.

Leaves mostly lanceolate. Calyx-lobes narrow, much longer than the tube and exceeding the petals 9. *B. purpurea*.

Leaves ovate obovate or orbicular, under 3 lines long.

Leaves mostly obovate or orbicular, spreading. Fruits 2 to 3 lines diameter, smooth and only 2 or 3 together 10. *B. Dampieri*.

Leaves recurved or spreading, 1 to 3 lines long. Fruits about 1 line diameter, in dense heads or spikes 11. *B. elegans*.

Leaves erect, appressed, under 1 line long. Fruits of *B. elegans*. 12. *B. micrantha*.

1. *B. sparsa*, R. Br. in *dit. Hort. Kew. ed. 2.* iv. 419. Glabrous, except the inflorescence. Leaves scattered, rather crowded, ovate-elliptical or ovate-lanceolate, obtuse, erect or recurved, many-nerved, flat or concave, but not keeled, $\frac{1}{4}$ to nearly $\frac{1}{2}$ in. long. Flower-spikes very dense and oblong, the axis already growing out before flowering, the rachis and calyx glabrous or slightly pubescent, the flowers rather small without the stamens. Calyx-tube about 1 line long; lobes scarcely so long, broad and very obtuse. Petals orbicular, twice as long as the calyx-lobes. Staminal bundles scarlet, fully 1 in. long, the claws slender, each with about 5 filaments at the end, scarcely $\frac{1}{4}$ as long as the claw; anther-valves small, orbicular. Staminal disk glabrous. Ovules solitary in each cell, the imperfect ones wanting or inconspicuous. Fruit-spikes about 1 in. long, the calyxes but slightly enlarged, the short lobes persistent or at length wearing off. Seeds obovoid; cotyledons plano-convex.—DC. Prod. iii. 211; Schau. in Nov. Act. Nat. Cur. xxi. 14 (by misprint 18), and in Pl. Preiss. i. 149; *B. splendens*, Paxt. Brit. Fl. Gard. xiii. 145, with a fig.

W. Australia. King George's Sound and adjoining districts, *Menzies, R. Brown, Drummond, 3rd Coll. n. 42, 4th Coll. n. 59; Preiss, n. 319, 355, and others.*

2. **B. decussata**, *R. Br. in Ait. Hort. Kew. ed. 2. iv. 418.* An erect shrub, of 3 or 4 ft., with rigid virgate branches, glabrous or loosely pubescent. Leaves opposite, decussate, ovate, obtuse or scarcely acute, recurved towards the end, concave, keeled, many-nerved, rarely $\frac{1}{2}$ in. long, the floral ones in the spike larger and often persistent. Flower-spikes ovoid or oblong, usually on the old wood below the year's branches, the rachis and calyxes glabrous or nearly so. Calyx-tube nearly 2 lines long; lobes linear-lanceolate, about the length of the tube. Petals orbicular, not exceeding the calyx-lobes. Staminal bundles of a rich red, often 1 in. long, the claws linear, each with 7 to 11 filaments at the end, about half as long as the claw; outer valve of each anther-cell much larger than the other, conical and deciduous. Staminal disk densely fringed within the stamens with woolly hairs. Ovary with 2 imperfect ovules in each cell, often of a considerable size, although concealed under the perfect one. Seeds oblong; cotyledons ovate, flat or plano-convex.—*DC. Prod. iii. 211; Schau. in Nov. Act. Nat. Cur. xxi. 13, and in Pl. Preiss. i. 148; Bot. Mag. t. 1733; Bot. Reg. t. 18; Colla, Hort. Ripul. t. 22.*

W. Australia. King George's Sound and adjoining districts, *R. Brown, Barter, Drummond, 3rd Coll. n. 59, 4th Coll. n. 61; Preiss, n. 356, and others.*

3. **B. squarrosa**, *Schau. in Nov. Act. Nat. Cur. xxi. 15 (by misprint 19), and in Pl. Preiss. i. 149.* A straggling shrub, of 3 or 4 ft., glabrous, except the inflorescence, and sometimes the young shoots. Leaves opposite, crowded, decussate, ovate or obovate, recurved, concave, 5- or 7-nerved, rarely exceeding 2 lines, the floral ones or bracts nearly orbicular and flatter. Flowers in dense, terminal, globular heads, the axis only growing out after flowering, the rachis usually pubescent. Calyx-tube 1 to nearly 2 lines long, rather narrow; lobes about 1 line long, prominently 3-nerved. Petals oblong, at least twice as long as the calyx-lobes. Staminal bundles crimson, at least $\frac{3}{4}$ in. long, the claws slender, each with 3 to 7 filaments at the end, shorter than the claw; anther-valves orbicular, ciliate. Ovary with 2 imperfect ovules in each cell under the perfect one, often enlarged and hardened after flowering, but without any embryo. Fruits, in some specimens, nearly solitary, ovoid, smooth, and 3 to 4 lines long, in others scarcely half so large and many together in little heads; the calyx-lobes always deciduous.

W. Australia. Canning river, *Preiss, n. 358; between Moore and Murchison rivers, Drummond, 6th Coll. n. 75; Port Gregory and Murchison rivers, Oldfield.*

4. **B. orbifolia**, *F. Muell. Fragm. iii. 110.* A spreading straggling shrub, of 2 or 3 ft., glabrous, except the inflorescence, or the young shoots slightly pubescent. Leaves opposite, crowded and decussate on the smaller branches, orbicular or broadly ovate, obtuse, flat or slightly concave, rigid, 5- or 7-nerved, $1\frac{1}{2}$ to 3 lines long. Flowers in dense globular heads, larger and more numerous than in *B. anisandra*, the axis occasionally growing out before the flowering is over, the rachis and calyxes pubescent or villous. Calyx-tube about $1\frac{1}{2}$ lines long; lobes rigid, 1- or 3-nerved, about half as long as the tube or the inner ones smaller. Petals broad, about as long as the calyx-tube, scarcely ciliate. Staminal bundles red, $\frac{3}{4}$ in. long, the claws narrow,

tapering at the end, each with 3 to 5 rigid divaricate filaments, about $\frac{1}{2}$ as long as the claw; anther-valves orbicular, the outer one of each cell much larger than the inner one. Ovary with 2 rudimentary ovules in each cell under the perfect one. Fruit-spikes globular or oblong, the calyx-lobes at length wearing off.

W. Australia. *Drummond*, 5th Coll. n. 178; E. Mount Barren, *Marxwell*. The petals are those of *B. anisandra*, but the flowers are more regular and the leaves broader.

5. **B. anisandra**, *Schau.* in *Nov. Act. Nat. Cur.* xxi. 17. t. 1 A, and in *Pl. Preiss.* i. 149. Glabrous, except the inflorescence, or the young shoots slightly pubescent. Leaves opposite, erect or spreading, ovate to ovate-lanceolate, obtuse or scarcely acute, $1\frac{1}{2}$ to 3 lines long, rigid, concave, keeled, with 1 or 2 faint lateral nerves on each side of the keel. Flowers in globular terminal heads, the long stamens of a rich purple when dry, of a dark bluish-purple when fresh or rarely red, the rhachis and calyxes pubescent or hirsute. Calyx-tube about 1 line long, the lobes not longer than the tube, and the inner ones (next the axis of the spike) often much smaller. Petals broad, slightly ciliate, the external one of each flower often $1\frac{1}{2}$ lines diameter, the inner ones much smaller. Staminal bundles very unequal in the same flower, the claws of the larger ones $\frac{1}{2}$ to $\frac{3}{4}$ in. long, slender, but rigid, bearded inside at the base, each with 3 to 7 rigid digitate filaments much shorter than the claw, the inner bundles very much shorter with fewer filaments; outer valves of each anther-cell orbicular, twice as large as the inner one. Ovary with one large ovule in each cell, the 2 rudimentary ones minute or wanting.

W. Australia. King George's Sound and adjoining districts, *A. Cunningham*, *Drummond*, 3rd Coll. n. 57; *Preiss.* n. 362, and others, and a var. with redder stamens, *Drummond* (3rd Coll. ?), n. 46; Kojonerup ranges, *Marxwell*.

6. **B. macrostemon**, *Lindl.* *Swan Riv. App.* 10. A small shrub, often not above 1 ft. high, more or less pubescent or hirsute. Leaves opposite, often broadly lanceolate and 3- or 5-nerved on the main stem, linear or linear-lanceolate, crowded and 1-nerved on the smaller branches, rather rigid, but scarcely acute, mostly 3 to 5 lines long. Flowers in dense globular heads, the rhachis and calyxes villous. Calyx-tube oblique, 1 to $1\frac{1}{2}$ lines long; lobes narrow-lanceolate or linear, as long as the tube or the outer ones longer. Petals ovate, ciliate, rarely exceeding the calyx-lobes. Staminal bundles unequal, the longer ones $\frac{3}{4}$ in. long, the claws narrow, more or less hairy inside at the base, tapering at the top, each with about 3 spreading filaments, much shorter than the claw; inner valve of each anther-cell scarcely conspicuous. Ovary with one large ovule in each cell, the rudimentary ones scarcely conspicuous or wanting.—*Schau.* in *Nov. Act. Nat. Cur.* xxi. 16, and in *Pl. Preiss.* i. 149.

W. Australia. Swan River, *Drummond*, 1st Coll.; *Preiss.* n. 357; Hampden, *Clarke*.

Var. *incana*. Leaves white-tomentose on both sides, the nerves inconspicuous. Swan River, *Drummond*.

7. **B. cyrtodonta**, *Benth.* This has the linear, decussate, crowded foliage and inflorescence of *B. Schaueri*, and may possibly be a variety, but the staminal bundles are longer, more unequal and rigid, of a rich red colour, and the claws three times as long as the filaments, as in *B. anisandra*, the

longest claw of each flower above $\frac{1}{2}$ in., and often $\frac{3}{4}$ in. long, with usually 3 filaments to each claw. The calyx-lobes lanceolate, not longer than the tube, 1-nerved, with the petals twice as long, readily distinguish it from *B. macrostemon*.—*Melaleuca cyrtodonta*, Turcz. in Bull. Mosc. 1849, ii. 24.

W. Australia, Drummond, 4th Coll. n. 65, 5th Coll. n. 174; Upper Kalgan river, Oldfield.

8. **B. Schaueri**, Preiss, according to Schau. in Nov. Act. Nat. Cur. xxi. 18 (by misprint 14), and in Pl. Preiss. i. 150. A handsome bushy shrub, of 2 to 6 ft., glabrous, except the inflorescence, or the young shoots slightly pubescent. Leaves opposite, sometimes broadly lanceolate, and 3- or 5-nerved on the larger branches, but mostly linear, crowded and decussate, obtuse, keeled, triquetrous or semiterete, 2 or 3 lines long in some specimens, twice as much in others. Flowers in dense globular heads, the rhachis usually tomentose-villous. Calyx-tube glabrous or pubescent, scarcely 1 line long; lobes triangular, 1-nerved, shorter than the tube. Petals rather broad, twice as long as the calyx-lobes. Staminal bundles pink, unequal, the longest 4 to 5 lines long, each with 3 to 7, but usually 5 filaments not shorter and often longer than the claw; inner valve of the anther-cells often scarcely conspicuous. Ovary with 1 ovule in each cell, without any or with 2 minute rudimentary ones. Fruit-heads globular or ovoid, about $\frac{1}{2}$ in. diameter.

W. Australia. King George's Sound and adjoining districts, Barter, Drummond, n. 151, and 5th Coll. n. 171; Preiss, n. 305, Oldfield; Phillips Ranges and Salt river, Maxwell.

Var. (?) *atrorubens*. Stamens dark red, longer and more rigid. In Maxwell's collection in Herb. F. Mueller.

9. **B. purpurea**, Lindl. Swan Riv. App. 10. t. 3 A. (*Manglesia*, in the plate.) Branches virgate, glabrous or slightly hoary. Leaves opposite, erect or spreading, ovate-lanceolate to lanceolate-linear on the main branches, linear and decussate on the smaller ones, keeled, rigid, 3- or 5-nerved, obtuse or scarcely acute, 2 to 4 lines long, the floral ones or bracts ovate-cordate, striate with 7 or 9 nerves, the lower ones exceeding the calyx. Flowers rather small in dense globular heads, the axis soon growing out, the rhachis tomentose-villous. Calyx-tube pubescent, under 1 line long; lobes subulate, erect, often twice as long as the tube but variable in length. Petals ovate, shorter than the calyx-lobes. Stamens purple, 3 to 4 lines long, in bundles of 3 to 7, usually 5, the narrow claw about as long as the filaments. Ovary with 1 perfect ovule in each cell without any rudimentary ones. Fruiting-spikes ovoid, under $\frac{1}{2}$ in. long.—Schau. in Nov. Act. Nat. Cur. xxi. 18 (by misprint 14), and in Pl. Preiss. i. 150.

W. Australia. Swan River, Drummond, 1st Coll. n. 129; Preiss, n. 258.

10. **B. Dampieri**, A. Cunn. in Bot. Mag. t. 3272. A rigid straggling tortuous glabrous shrub. Leaves opposite, recurved or very spreading, usually crowded and decussate, orbicular or broadly obovate, obtuse or mucronulate, 1 to $1\frac{1}{2}$ lines long, rigid, prominently 3-nerved besides the nerve-like margins. Flowers small in dense globular heads, the axis soon growing out, the rhachis glabrous or scarcely tomentose. Calyx-tube rather above $\frac{1}{2}$ line long, the lobes triangular, about as long as the tube. Petals orbicu-

lar, exceeding the calyx-lobes. Stamens pale pink, 3 to 4 lines long, in bundles of 9 to 15, the claw shorter than the filaments; outer valve of each anther-cell large and orbicular. Ovary not seen, the flowers examined all males. Fruiting-calyxes usually few in the head or occasionally solitary, ovoid, thick, smooth, attaining 3 lines diameter or even more. Seeds (not seen quite ripe) one large perfect one in each cell with 2 small hard erect sterile ones under it.—*Schau. in Nov. Act. Nat. Cur.* 19 (by misprint 15).

W. Australia. Sands of Sharks' Bay, *Baudin's Expedition, Denham*; Dirk Hartog's Island, *A. Cunningham, Milne*.

Melaleuca sprengeloides, DC. *Prod.* iii. 215; *Mem. Myrt.* t. 3, appears to me to be referable rather to this plant than to the *Regelia ciliata*.

11. **B. elegans**, *Schau. in Nov. Act. Nat. Cur.* xxi. 20, and in *Pl. Preiss.* i. 150. A rigid bushy shrub, usually glabrous except the inflorescence. Leaves opposite, erect, recurved at the end, ovate obovate or broadly oblong, acute or rather obtuse, concave, rigid, 3-nerved, $1\frac{1}{2}$ to 3 lines long. Flowers (yellowish-white?) in dense ovoid or oblong spikes, the axis soon growing out, the rhachis woolly. Calyx-tube hirsute at the base, ovoid, about $\frac{2}{3}$ line long; lobes lanceolate or triangular, nearly as long as the tube. Petals oval-oblong, ciliate, often not much exceeding the calyx-lobes. Staminal bundles about 4 lines long, the claws narrow, exceeding the petals, each with 5 to 7 filaments about as long as the claw. Ovary with 1 large perfect ovule in each cell and 2 minute rudimentary ones under it, sometimes quite wanting. Fruiting-calyxes small in dense ovoid or cylindrical spikes of about $\frac{1}{2}$ in. or less.

N. Australia. N. W. Cape, *Martin*.

W. Australia. Swan River, *Drummond*, 1st Coll., 2nd Coll. n. 62; Granger plain, *Preiss*, n. 284.

Var. *minor*. Leaves mostly about 1 line long. Flowers smaller, of a deep pink, mostly in globular heads. Calyx-lobes short.—*B. microphylla*, Turcz. in Bull. Mosc. 1849. ii. 24; *Drummond*, n. 130, 4th Coll. n. 64; Point Henry, *Oldfield*, also the above-mentioned specimen from N. W. Cape. Some specimens are quite intermediate between the original form and the small variety, and the latter again approaches in many respects the *B. micrantha*.

12. **B. micrantha**, *Schau. in Nov. Act. Nat. Cur.* xxi. 22, and in *Pl. Preiss.* i. 151. A small much-branched shrub, the branches often woolly-tomentose but concealed by the more glabrous foliage. Leaves opposite, erect, appressed, decussate and imbricate on the smaller branches, more distant on the larger ones, ovate-triangular, rather obtuse, thick, keeled, $\frac{1}{2}$ to 1 line long, attached by the broad base, but not really peltate. Flowers small, pink, the males in small globular heads, the hermaphrodite in ovoid or oblong spikes, the rhachis tomentose. Calyx-tube pubescent, not $\frac{1}{2}$ line long; lobes ovate, obtuse, concave, shorter than the tube. Petals rather longer than the calyx-lobes, ciliate. Stamens about 2 lines long, in bundles of 3, the claws much shorter than the filaments, and often hairy at the base. Ovary with 1 perfect ovule in each cell and 2 small rudimentary ones behind it. Fruiting-spikes 3 to 6 lines long, the calyxes not 1 line diameter, with the lobes usually inflexed and persistent the first year, but at length falling off as in other species.—*Regelia adpressa*, Turcz. in Bull. Mosc. 1849, ii. 25.

W. Australia. Stirling ranges and Konkoberup hills towards Cape Riche, *Drummond*, 4th Coll. n. 63; *Preiss*, n. 256; *Maxwell*.

Var. *puberula*. Leaves rather larger, imbricate, minutely pubescent, the keel less prominent. Flowers rather larger, with usually 5 stamens to each bundle.—*Drummond*, 4th Coll. n. 151; 5th Coll. n. 173.

Var. *empetrifolia*. Leaves rather narrower and more spreading, $\frac{1}{2}$ to nearly 3 lines long.—*Melaleuca empetrifolia*, Reichb. Icon. Exot. ii. 1. t. 102; *Beaufortia empetrifolia*, Schau. in Nov. Act. Nat. Cur. xxi. 21; Lucky Bay, *R. Brown*.

Melaleuca Regelii, Planch. in Hort. Donat. 88. t. 4, may be the same species, but it has only been described from the drawing, which gives no analysis.

25. *REGELIA*, Schau.

Calyx-tube ovoid or nearly globular, adnate to the ovary at the base, the free part usually contracted; lobes 5, usually deciduous. Petals 5, spreading. Stamens indefinite, united in 5 bundles opposite the petals, the filaments or free parts filiform; anthers erect, the cells placed back to back and opening outwards in longitudinal slits or terminal pores. Ovary inferior, the convex summit villous, with a slight central depression round the style, 3-celled, with 4 ovules in each cell, peltately attached in pairs to a peltate placenta; style filiform, with a small stigma. Capsule enclosed in the enlarged and hardened truncate calyx-tube, opening loculicidally in 3 valves. Seeds 1 or 2 perfect in each cell. Embryo . . .—Rigid shrubs, usually pubescent or villous, with the habit of *Beaufortia*. Leaves small, opposite, mostly 3- or more-nerved. Flowers closely sessile and solitary within each bract in dense heads at first terminal, but the central axis soon growing out into a leafy branch, and often polygamous as in *Melaleuca* and *Beaufortia*.

The genus is limited to West Australia, and only differs from *Beaufortia* in the anthers and the number of ovules.

Staminal bundles $\frac{3}{4}$ in. long, the claw much longer than the filaments.

Leaves ovate-lanceolate, $\frac{1}{2}$ in. long 1. *R. grandiflora*.

Staminal bundles 2 to 4 lines long, the claw shorter or not longer than the filaments.

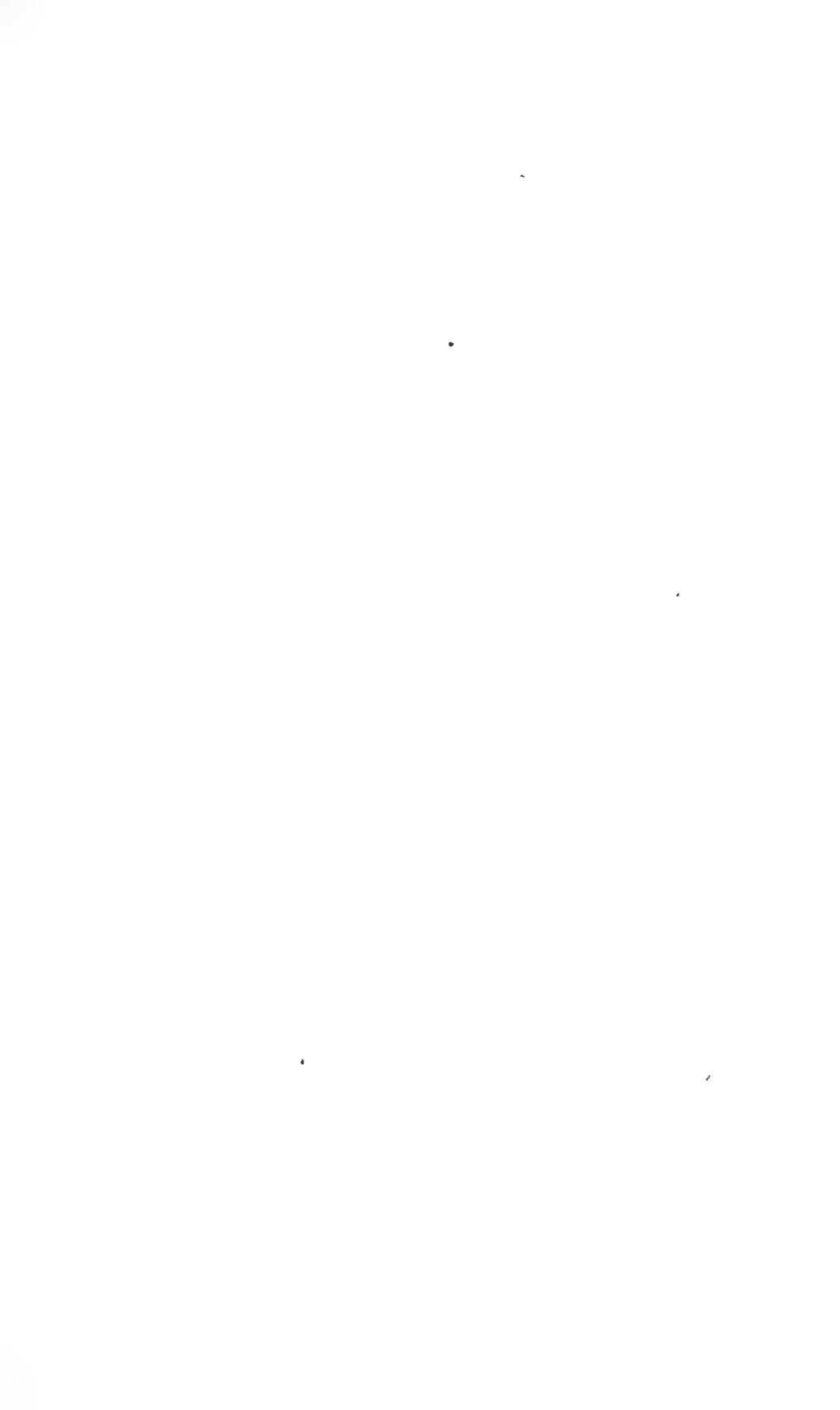
Leaves broad, spreading, 2 to 3 lines long 2. *R. ciliata*.

Leaves erect, peltately attached, $\frac{1}{2}$ to 2 lines long 3. *R. inops*.

1. ***R. grandiflora*, Benth.** Branches stout, rigid, long and virgate, hoary-villous. Leaves erect or spreading, decussate, ovate-lanceolate, obtuse or almost acute, keeled and about 5-nerved, mostly about $\frac{1}{2}$ in. long, silky-hoary on both sides. Flower-spikes large, dense, globular or ovoid, the rhachis and calyxes very silky-villous. Lower bracts often leaf-like and exceeding the calyx. Calyx-tube oblique, a little above 1 line long; lobes linear, fully 2 lines long. Petals narrow-oblong, about as long as the calyx-lobes, fringed with fine cilia. Staminal bundles of a rich red, nearly $\frac{3}{4}$ in. long, the linear claws at least twice as long as the petals, each with 7 to 11 filaments shorter than the claw; anthers conical, the cells opening outwards in longitudinal slits. Fruits not seen.

W. Australia, *Drummond*, 5th Coll. n. 179.

2. ***R. ciliata*, Schau. in Nov. Act. Nat. Cur. xxi. 11, and in Pl. Preiss. i. 148.** A spreading shrub of 3 to 5 ft., more or less pubescent or hirsute. Leaves erect, spreading or recurved, broadly ovate obovate or almost orbicu-



lar, obtuse, flat or concave, rigid, prominently 3- or rarely 5-nerved, 2 to 3 lines long. Flower-heads small, dense, globular, the rhachis woolly. Calyx-tube woolly tomentose or hirsute, nearly globular, above 1 line long; lobes erect, lanceolate or almost linear, shorter than the tube. Petals scarcely exceeding the calyx-lobes, rather broad and entire. Staminal bundles scarcely 4 lines long, the claws linear, each with 7 to 11 filaments almost as long as the claw; anther-cells opening in small terminal pores. Fruiting-calyxes not very numerous, in a globular head, and when perfect concrete nearly to the top, each one about 2 lines diameter, with a broad open truncate orifice.

W. Australia. Swan River, *Drummond*, 1st Coll. and 2nd Coll. n. 51; Vasse river, *Preiss*, n. 287.

Schauer refers here *Melaleuca sprengelioides*, DC., but the plate, Mem. Myrt. t. 3, appears to me rather to represent *Beaufortia Dampieri*, especially in the venation of the leaves and in the anthers.

3. R. inops, Schau. in Pl. Preiss. ii. 224. A low straggling densely-branched shrub, or sometimes taller with virgate branchlets, more or less pubescent. Leaves appressed, ovate or triangular, peltately attached near the base as in the small-leaved *Melaleucas*, obtuse, thick and obtusely keeled, $\frac{1}{2}$ to 1 line long and decussately imbricate on the smaller branchlets, more distant and often 2 lines long on the more luxuriant branches, the floral ones, especially under the hermaphrodite flowers, often much broader. Flowers pink, in small globular heads. Calyx-tube in the males scarcely $\frac{1}{2}$ line long, glabrous or pubescent; lobes ovate, rather shorter than the tube, in the perfect flowers the tube is villous, 1 line long, but the lobes not longer than in the males. Petals broad, longer than the calyx-lobes. Stamens nearly 3 lines long, in bundles of 7 to 11, the linear claw about as long as the filaments; anthers opening in oblong pores or short slits, longitudinal or somewhat oblique. Fruiting-calyxes 3 or 4 together or sometimes solitary, ovoid-globular, attaining 3 lines, with a broad truncate orifice.—*Beaufortia inops*, Schau. in Nov. Act. Nat. Cur. xxi. 21, and in Pl. Preiss. i. 150; *Regelia globosa*, Turcz. in Bull. Mosc. 1847, i. 168.

W. Australia. King George's Sound to Swan River, *Maclean*; *Drummond*, 3rd Coll. n. 55; *Preiss*, n. 257.

26. PHYMATOCARPUS, F. Muell.

Calyx-tube nearly globular, adnate to the ovary at the base, the free part somewhat contracted; lobes 5, persistent. Petals 5, spreading. Stamens indefinite, very shortly united in a ring at the base, and higher up into 5 bundles opposite the petals, the filaments or free parts filiform; anthers erect, obovoid, the cells placed back to back and opening outwards towards the top in transverse slits. Ovary free, inferior, the truncate summit villous, with a slight central depression round the style, 3-celled, with 2 to 4 ovules in each cell erect on a short basal almost peltate placenta; style filiform, with a small stigma. Capsule enclosed in the enlarged and hardened calyx-tube, opening loculicidally in 3 valves. Seeds few, erect, with a thin testa; embryo straight; cotyledons plano-convex, longer than the radicle.—Shrub, with the small opposite leaves, globular flower-heads and habit of *Regelia* and *Beaufortia*.

This genus is limited to the single Australian species, only differing from *Beaufortia* and *Regelia* in the anthers and ovules.

1. **P. porphyrocephalus**, *F. Muell. Fragm.* iii. 121. A shrub of 2 to 3 ft., usually glabrous except the inflorescence. Leaves erect and imbricate or spreading, orbicular or broadly ovate, obtuse, flat or concave, thick, 1-nerved, 1 to 2 lines long. Flowers small (varying in colour purple or white on the same bush, according to Oldfield) in dense globular heads, the rhachis and calyxes woolly. Calyx-tube $\frac{3}{4}$ line long; lobes ovate-triangular, erect, shorter than the tube. Petals nearly 1 line diameter, ciliolate. Stamens 2 to 3 lines long, shortly united in clusters of 11 to 15, and all connected at the base into a complete ring. Ovules usually 3 in each cell. Fruiting-calyx when old depressed-globular, 2 to $2\frac{1}{2}$ lines diameter, coarsely warted outside, the orifice very open, crowned by the short thick lobes. Seeds few and erect as in *Melaleuca*.

W. Australia. Sand plains, Murchison river, *Oldfield*, and apparently the same species, in fruit only, *Drummond*, n. 71.

27. CALOTHAMNUS, Labill.

(Billotia, Colla.)

Calyx-tube campanulate, adnate to the ovary at the base, the free part erect or dilated; lobes 4 or 5, persistent or deciduous. Petals 4 or 5, spreading, usually scarious. Stamens indefinite, much longer than the petals, united in 4 or 5 bundles opposite to them, the filaments or free parts filiform, the lower bundles of each flower sometimes reduced to a single stamen, or without any anther; anthers oblong or linear, erect, attached by the base, the cells parallel and opening inwards in longitudinal slits. Ovary enclosed in the calyx-tube, half inferior or almost free, the convex summit villous with a central depression round the style, 3- or very rarely 4-celled, with several ovules in each cell, erect or ascending on a small placenta; style filiform with a small stigma. Capsule enclosed in the hardened and enlarged calyx-tube, opening loculicidally in 3 or rarely 4 valves. Perfect seeds few, angular and often ciliate or winged at the angles; testa thin; embryo straight; cotyledons plano-convex, longer than the radicle.—Shrubs usually stout, glabrous or hirsute. Leaves scattered, narrow, rigid, terete or flat, 1-nerved or nerveless. Flowers showy, usually red, in lateral clusters or spikes usually turned to one side, immersed in the rhachis when young, and either protruding and free from the time of flowering or remaining immersed till the maturity of the seed. Bracts none. Flowers often polygamous as in the allied genera.

The genus is confined to Western Australia.

A. *Flowers 4-merous. Two upper staminal bundles broad and flat, two lower ones narrow and without anthers (except in C. torulosa). Calyx-lobes as long as the tube.*

Calyx entirely immersed in the thick swollen rhachis.

Leaves flat, 4 to 6 in. long. Rhachis of the spike densely clothed with long hairs

Leaves terete, 6 to 12 in. long. Rhachis of the spike softly but shortly pubescent

1. *C. pachystachyus*.
2. *C. longissimus*.

Calyx not immersed in the rhachis.

Leaves mostly $\frac{1}{2}$ to 1 in. long. Lower staminal claws simple without anthers.

Leaves more or less flattened 3. *C. blepharanthus*.

Leaves terete 4. *C. sanguineus*.

Leaves mostly 1 to 2 in. or more. Lower staminal claws much narrower than the upper ones, but with several stamens. Fruits very large 5. *C. torulosus*.

B. Flowers 5-merous. Staminal bundles nearly equal. Perfect seeds (where known) ciliate on the angles.

Flowering calyx-tube not exceeding 1 line, immersed or half-immersed in the rhachis. Leaves terete, rigid.

Calyx entirely immersed in the corky rhachis 6. *C. gibbosus*.

Calyx only half immersed when in flower 7. *C. gracilis*.

Flowering calyx-tube 2 to 3 lines long, almost or quite free.

Leaves flat, oblanceolate, 2 to 3 in. long 8. *C. blepharospemus*.

Leaves terete, rigid, 2 to 4 in. long 9. *C. chrysanthus*.

Leaves terete or slightly flattened, mostly under 1 in. 10. *C. Oldfieldii*.

C. Flowers 4-merous (except in *C. villosus*). Staminal bundles nearly equal or the lower ones rather smaller or very rarely reduced to a single stamen.

Flowering calyx-tube more or less immersed. Fruiting-calyx depressed, globular.

Fruiting-calyx nearly or wholly immersed in the swollen rhachis.

Leaves flat, oblanceolate or cuneate, 1 to 2 in. long 11. *C. planifolius*.

Leaves terete, 2 to 12 in. long 12. *C. lateralis*.

Fruiting-calyx almost entirely exserted. Leaves terete.

Stamens above $\frac{1}{2}$ in. long.

Leaves rigid, often slightly flattened. Staminal bundles nearly equal 13. *C. microcarpus*.

Leaves slender. Staminal bundles very unequal 14. *C. Preissii*.

Stamens 3 to 4 lines long.

Leaves long. Staminal bundles nearly equal 15. *C. Schaueri*.

Leaves short. Lower staminal bundles reduced to a single stamen 16. *C. Lehmanni*.

Flowering-calyxes exserted from the first and free.

Calyx very hirsute. Leaves short, terete.

Flowers mostly 5-merous. Calyx-lobes usually deciduous 17. *C. villosus*.

Flowers mostly 4-merous. Calyx-lobes usually persistent.

Calyx-tube 2 lines, lobes 1 line long 18. *C. pinifolius*.

Calyx-tube 3 to 3½ lines, lobes 2 lines long. Fruits large 19. *C. rupestris*.

Calyx glabrous or closely hoary-pubescent. Flowers 4-merous.

Leaves terete or slightly flattened. Fruiting-calyx 2-lobed 20. *C. quadrifidus*.

Leaves 1 line broad. Fruiting-calyx equally 4-lobed 21. *C. asper*.

Leaves flat, 1½ to 3 lines broad. Fruiting-calyx unequally 4-lobed 22. *C. homalophyllus*.

1. **C. pachystachyus**, Benth. Branches very thick, densely clothed with long loose hairs. Leaves rather crowded, linear, flat, acuminate-acute, much-narrowed at the base, thick, 1-nerved, 4 to 6 in. long. Flowers large, 4-merous, in dense ovoid or oblong unilateral spikes. Calyx-tube almost entirely immersed in the swollen densely hairy rhachis, about 2 lines broad but much shorter; lobes orbicular, spreading, as long as the tube. Petals obovoid-orbicular, fully 3 lines long. Staminal bundles unequal, the 2 upper claws broadly petal-like, fully $\frac{1}{2}$ in. long, each with 15 to 20 or more short

filaments crowded at the end, the anthers villous in the bud, the 2 lower claws narrower, undivided, acute and without anthers. Ovules rather numerous in each cell. Fruiting-calyxes more or less immersed, 3 to 4 lines diameter, with 2 thick hard inflexed lobes, the 2 others worn away, the dilations of the rhachis enclosing the fruits corky at the base, thin round the calyx and densely clothed with long hairs.

W. Australia, *Drummond*, 2nd Coll. n. 70, 71; 3rd Coll. n. 53.

2. **C. longissimus**, *F. Muell. Fragm.* iii. 112. A low shrub, the thick more or less corky branches softly but shortly pubescent. Leaves terete, slender but rigid, acute, 6 in. to above 1 ft. long, glabrous but scabrous. Flowers large, 4-merous, few in globular or ovoid more or less unilateral spikes. Calyx-tube villous, immersed in the swollen pubescent corky rhachis; lobes 1 to $1\frac{1}{2}$ lines long. Petals fully 3 lines long. Staminal bundles unequal, the 2 upper claws often nearly 1 in. long, broad and petal-like, with 15 to 30 short filaments, not so crowded at the end as in *C. pachystachyus*, the 2 lower claws narrow, undivided, acute, without anthers. Fruiting-calyx entirely immersed or nearly so, 2 to 3 lines long, with 2 thick connivent lobes, the 2 others obliterated.

W. Australia, *Drummond*, 2nd Coll. n. 74; 3rd Coll. n. 54. Sandy plains near Cajong, Oldfield.

3. **C. blepharanthus**, *F. Muell. Fragm.* iii. 112. Very closely allied to *C. sanguineus*, differing chiefly in the short leaves, not terete, but more or less flattened; they are linear, rather thick, $\frac{1}{2}$ in. or rarely $\frac{3}{4}$ in. long. Flowers and fruits as in *C. sanguineus*, the two lower staminal claws as in that species, simple and without anthers, or rarely bearing a very few filaments with perfect anthers.

W. Australia. Murchison river, Oldfield.

4. **C. sanguineus**, *Labill. Pl. Nov. Holl.* ii. 25. t. 164. A tall shrub, either hirsute with long spreading hairs especially on the young shoots, or glabrous from the first. Leaves subulate, terete, acute, slender, sometimes all from $\frac{1}{2}$ to 1 in., sometimes 1 to $1\frac{1}{2}$ in. long. Flowers 4-merous, rather large, unilateral, few together or in short spikes, not at all immersed in the rhachis. Calyx-tube villous, broad, about $1\frac{1}{2}$ lines long; lobes ovate, as long as the tube, with scarious margins. Petals ovate, 2 to 3 lines long, the 2 upper ones often larger than the lower. Staminal bundles of a rich red, about 1 in. long, the 2 upper claws usually united into one, but readily separating, broad, with very numerous filaments, the 2 lower ones narrow-linear, undivided, without anthers. Fruiting-calyxes ovoid or almost globular, very thick and woody, quite smooth, 4 to 6 lines long, including the thick connivent lobes, of which 2, opposite to each other, are usually larger than the 2 others.—*DC. Prod.* iii. 211; *Schau. in Nov. Act. Nat. Cur.* xxi. 24, and in *Pl. Preiss.* i. 151; *C. eriocarpus*, *Lindl. Swan Riv. App.* 9.

W. Australia. Géographie Bay, *Labillardière*; King George's Sound to Vasse and Swan rivers, *Baxter*; *Collie*; *Drummond*, 1st Coll. and n. 127, 128; *Preiss.* n. 214, 216, 219, 220, 221; and others.—The anthers in this and some of the allied species are more or less ciliate, and the division between the cells is often so narrow as to make the anther appear 1-celled.

5. **C. torulosus**, *Schan. in Nov. Act. Nat. Cur.* xxi. 25, and in *Pl. Preiss.* i. 152. Closely resembles the longer-leaved forms of *C. sanguineus*, and may be a variety. Leaves slender, erect, terete, about $1\frac{1}{2}$ in. long. Inflorescence of *C. sanguineus*. Calyx rather more open, with a short tube and longer lobes, the 2 upper staminal bundles more separate, each with very numerous filaments, the 2 lower claws, although very narrow, bear a few filaments. Fruiting-calyxes larger than in *C. sanguineus*, often 6 lines long without the lobes, very thick, with thick connivent lobes, of which two larger than the others, as in *C. sanguineus*.

W. Australia. Cape Naturaliste, *Oldfield*; Swan River, *Drummond*, 1st Coll.; foot of Darling Range, *Preiss.* n. 212.

Var. (?) *leptophylla*. Leaves slender, 2 to 4 in. long. Only seen in fruit. *Drummond*, n. 32 and 39.

6. **C. gibbosus**, *Benth.* Glabrous except the young shoots, more or less plumose-villous, the branches usually thick and corky. Leaves terete, rigid, mucronate, 1 to 2 or rarely 3 in. long. Flowers 5-merous, in short ovoid or oblong spikes, forming unilateral distinct corky excrescences. Calyx-tube glabrous, buried in the corky rhachis, about 1 line long; lobes rather shorter, very deciduous. Petals ovate, twice as long as the calyx-lobes. Staminal bundles red, about $\frac{3}{4}$ in. long, all nearly equal, the claws rather narrow, linear, each with 7 to 11 filaments. Fruiting-calyxes depressed-globular, about $1\frac{1}{2}$ lines diameter, almost completely enclosed in the cork, the orifice rather broad and truncate.

W. Australia, *Drummond*, 5th Coll. n. 180; Gardner river, *Maxwell*.

7. **C. gracilis**, *R. Br. in Ait. Hort. Kew. ed.* 2. iv. 418. A low shrub, quite glabrous in all our specimens. Leaves numerous, terete, rigid, mostly $1\frac{1}{2}$ to $2\frac{1}{2}$ but sometimes 3 to 4 in. long. Flowers 5-merous, of a rich red, in short scarcely prominent unilateral clusters of 2 to 4 each. Calyx-tubes under 1 line long, more or less immersed in the slightly prominent rhachis; lobes short. Petals about 1 line long. Staminal bundles about 1 in. long, all nearly equal, the claws narrow, each with 3 to 7 filaments. Fruiting-calyxes globular or slightly depressed, 3 to 4 lines diameter, adnate by their broad base to a slight cavity of the rhachis, but not immersed; lobes inflexed and usually persistent, at least the first year. Seeds when perfect more or less ciliate on the angles.—*DC. Prod.* iii. 211; *Schau. in Nov. Act. Nat. Cur.* xxi. 33, and in *Pl. Preiss.* i. 155.

W. Australia. Lucky Bay, *R. Brown*; King George's Sound and adjoining districts to Cape Riche, *Baxter, Harvey, Maxwell, Drummond*, 5th Coll. n. 180; Middle Mount Barren, *Maxwell* (with the fruiting-calyx breaking out into corky excrescences).—*Drummond's* n. 55 is perhaps a variety of this species, with the fruits less depressed, and very thick calyx-lobes.

8. **C. blepharospermus**, *F. Muell. Fragm.* iii. 111. A rigid straggling or diffuse shrub, hirsute with spreading hairs, the foliage scarcely becoming glabrous with age. Leaves flat, oblanceolate, obtuse or mucronate, 2 to 3 in. long and often 3 lines broad, very rigid and scabrous along the midrib and margins. Flowers 5-merous, few, large, not strictly unilateral, and sometimes all round the stem in clusters or irregular spikes, the rhachis tomentose or hirsute, somewhat corky, and slightly dilated round the calyx.

Calyx-tube nearly 3 lines long, densely hirsute, adnate by the broad base but not immersed; lobes half as long as the tube. Petals 3 to 4 lines long. Staminal bundles at least $1\frac{1}{4}$ in. long, the claws narrow, each with numerous rather short filaments from the middle upwards. Ovary almost free in the bottom of the calyx-tube. Fruiting-calyxes nearly cylindrical, 5 to 6 lines long, very thick, more or less verrucose, the 5 erect or spreading lobes persistent at least the first year. Perfect seeds usually 1 in each cell, hirsute especially at the angles with thick transparent cilia, the remaining seeds imperfect, linear-cuneate and glabrous.

W. Australia. Murchison river, *Oldfield*.

Var. (?) *glaber*. Quite glabrous. Leaves rather longer and narrower. Flowers more unilateral. With the typical form, *Oldfield*.

9. **C. chrysanthorus**, *F. Muell. Fragm.* iii. 112. An erect shrub, with thick more or less corky branches, the young shoots villous with spreading hairs, the older foliage glabrous. Leaves terete, thick, mucronate-acute, 2 to 4 in. long. Flowers mostly 5-merous, large, few and unilateral, the rhachis slightly swollen and excavated. Calyx-tube sessile by the broad base, but otherwise free, hirsute, very thick, nearly 2 lines long; the lobes 1 to $1\frac{1}{2}$ lines. Petals obovate-oblong, often ciliate, 2 to 3 lines long. Staminal bundles of a rich red, above 1 in. long, nearly equal, each with numerous filaments. Fruits thick, ovoid or cylindrical, smooth or verrucose, 4 to 6 lines long, the thick erect connivent lobes usually persistent. Seeds ciliate on the angles as in *C. blepharosperrmus*.

W. Australia. Murchison river, *Oldfield*.

10. **C. Oldfieldii**, *F. Muell. Fragm.* iii. 113. A shrub of 1 to 4 ft., with thick often corky branches, usually glabrous except the calyxes. Leaves terete or slightly flattened, thick, obtuse or mucronate, sometimes all under 1 in., rarely 1 to 2 in. long. Flowers mostly 5-merous, few, large, in unilateral clusters of 3 or 4, the rhachis slightly swollen, sometimes corky, and adhering irregularly to the calyx-tubes. Calyx otherwise free, adnate or very shortly immersed at the base, the tube thick, about 2 lines long; lobes broad, obtuse, about 1 line long. Petals about 2 lines. Staminal bundles $\frac{3}{4}$ to 1 in. long, nearly equal, each with numerous filaments. Fruiting-calyxes ovoid or nearly globular, very thick, 4 to 6 lines diameter, smooth, warted or breaking out into corky excrescences.

W. Australia. Murchison river, *Oldfield*.

11. **C. planifolius**, *Schau. in Nov. Act. Nat. Cur.* xxi. 35. *t.* 1 B, and in *Pl. Preiss.* i. 155. A rigid erect shrub of 2 to 3 ft., with villous branches. Leaves oblanceolate or linear-cuneate, flat, thick, acute when young, obtuse and more or less mucronate when old, 1 to 2 in. long. Flowers 4-merous, unilateral. Calyx-tube almost or entirely immersed in the swollen rhachis, glabrous, about 1 line long; lobes broad, the 2 larger ones shorter than the tube. Petals broad, above 1 line diameter. Staminal bundles red, $\frac{3}{4}$ to 1 in. long, the claws narrow-linear but flat, each with 3 to 7 pinnately distant filaments. Fruiting-calyx depressed, nearly 2 lines diameter, the tube from one-half to wholly immersed, the 2 larger opposite lobes connivent; the 2 smaller ones soon wearing away.

W. Australia. King George's Sound and adjoining districts, *Drummond*, 3rd Coll. n. 58; *Preiss*, n. 205, 206.

Var. *pallidifolius*. Branches glabrous. Leaves not so thick, more obtuse, 2 to 3 in. long, and often 3 to 4 lines broad, more or less distinctly penniveined when dry. Stamens apparently greenish-yellow, *Drummond*, n. 40, and 2nd Coll. n. 72.

12. **C. lateralis**, *Lindl. Swan Riv. App.* 9. Quite glabrous. Leaves terete, usually slender, often many in. long, obtuse or mucronate. Flowers 4-merous, in unilateral spikes of 1 to 3 in., the rachis usually glabrous and smooth until the flowers break out, swelling to 3 or 4 lines diameter. Calyx entirely immersed, the tube about 1 line long; lobes obtuse, nearly as long as the tube. Petals nearly twice as long as the calyx-lobes. Staminal bundles red, often above 1 in. long, but slightly unequal, the claws narrow-linear, each with about 5 filaments. Fruiting-calyx entirely immersed, the lobes wearing away, or only 2 remaining persistent, the thick rachis after flowering appearing to be excavated in a number of holes, at the bottom of which are the young capsules.

W. Australia, *Drummond*, *Preiss*, and others.

The following forms are sometimes very distinct, but often pass into each other:—

1. *longifolius*. Leaves slender, $\frac{1}{2}$ to 1 ft. long or even more.—*C. longifolius*, *Lehm. Del. Sem. Hort. Hamb.* 1842, 7, according to *Schau.* in *Nov. Act. Nat. Cur.* xxi. 34, and in *Pl. Preiss.* i. 155.—King George's Sound, *R. Brown*; wet or sandy places from King George's Sound to Swan River, *M'Lean*; *Drummond*, 1st Coll. n. 125; *Preiss*, n. 200, 203, 204; *Oldfield*; *Turner*.

2. *rigidus*. Leaves more rigid, 2 to 4 in. long.—*C. nodosus*, *Turcz.* in *Bull. Mosc.* 1847, i. 168. *C. Huegelii*, *Schau.* in *Nov. Act. Nat. Cur.* xxi. 34 (from the description given).—*Drummond*, 3rd Coll. n. 60.

3. *crassus*. Leaves still more rigid. Rachis of the spike 3 in. long and 6 to 9 lines thick, with very numerous flowers.—*Drummond*, n. 37, and 2nd Coll. n. 73.

13. **C. microcarpus**, *F. Muell. Fragm.* iii. 113. A spreading shrub of 2 to 4 ft., glabrous, or the young shoots closely pubescent. Leaves linear, thick, terete or flattened and more or less marked with 2 longitudinal furrows, obtuse or mucronate, 1 to 2 in. long. Flowers 4-merous, in short prominent clusters of 2 to 4, forming an interrupted unilateral spike of 1 to 2 in. Calyx-tube nearly buried in the rachis, glabrous, $\frac{3}{4}$ line long; lobes much shorter. Petals as long as the calyx-tube. Staminal bundles about $\frac{3}{4}$ in. long, the claws very narrow, each with 3 to 9 rather long and slender filaments. Fruiting-calyxes depressed-globular, about 2 lines diameter, immersed at the base only in the prominent rachis; lobes persistent, inflexed, nearly equal.

W. Australia. Between King George's Sound and Swan River, *Drummond*; Kalgan river, *Oldfield*.

Var. *teres*. Leaves all terete. Spikes more continuous. Flowers rather less immersed.—*Drummond*, 5th Coll. n. 182.

14. **C. Preissii**, *Schau.* in *Nov. Act. Nat. Cur.* xxi. 31, and in *Pl. Preiss.* i. 154. Young shoots silky-hairy, otherwise glabrous. Leaves terete, very slender, mostly mucronate and often curved or hooked at the end, 3 to 5 in. long. Flowers 4-merous, rather small, in prominent clusters, forming a continuous or interrupted unilateral spike of 2 to 3 in., the rachis more or less enclosing the calyces, or forming a torn thin border round them

at the time of flowering. Calyx-tube glabrous, about 1 line long; lobes rather shorter. Petals $1\frac{1}{2}$ lines long. Stāminal bundles slender, very unequal, the largest one in each flower $\frac{3}{4}$ in. long, with 5 to 9 filaments, the smaller with 1 or 2 filaments, or sometimes undivided and without any anthers, the 2 others usually intermediate. Fruiting-calyxes in closely packed clusters, not immersed in the rhachis, but not seen full grown.—*C. laxus*, Kunze in Linnæa, xx. 58 (from the description given).

W. Australia. *Drummond*, n. 234; Gordon river, *Preiss*, n. 209.—The species is nearly allied to *C. Schaueri*, but the staminal bundles are longer and more unequal.

15. **C. Schaueri**, *Lehm. Sem. Hort. Hamb.* 1842, 7, according to *Schau.* in *Nov. Act. Nat. Cur.* xxi. 32, and in *Pl. Preiss.* i. 154. Glabrous, or the young shoots more or less hairy. Leaves filiform, slender, terete, acuminate, acute, 4 to 8 in. long. Flowers 4-merous, small, in dense unilateral spikes of $\frac{1}{2}$ to 1 in. Calyx wholly immersed at the time of flowering. Staminal bundles nearly equal, 3 to 4 lines long, each with 2 to 4 filaments. Fruiting-calyxes 1 to $1\frac{1}{2}$ lines diameter, forming dense spikes, but less than half immersed in the rhachis.—*C. schænophyllus*, *Schau.* in *Nov. Act. Nat. Cur.* xxi. 33, and in *Pl. Preiss.* i. 154.

W. Australia. King George's Sound, *R. Brown*; and adjoining districts, *Preiss*, n. 201, 202; *Drummond*; *Oldfield*; *Baxter*.

16. **C. Lehmanni**, *Schau.* in *Nov. Act. Nat. Cur.* xxi. 31, and in *Pl. Preiss.* i. 153. A low branching shrub, the young shoots usually plumose-hirsute, the foliage rarely quite glabrous till the second year. Leaves crowded, terete, mostly acute, about 1 in. long. Flowers 4-merous, small, forming dense slightly prominent unilateral spikes of $\frac{1}{2}$ to 1 in. Calyx-tube immersed in the rhachis at the time of flowering, about $\frac{1}{2}$ line long; lobes nearly as long as the tube. Petals broad, nearly 1 line diameter. Staminal bundles 3 to 4 lines long, the claws narrow, one with 5 to 7 filaments, one with 3 to 5, the two others tapering into a single filament with one anther. Fruiting-calyxes depressed-globular, about $1\frac{1}{2}$ lines diameter, collected into dense spikes, but immersed at the base only; lobes connivent, all equal, or 2 small or obliterated.—*C. plumosus*, *Turcz.* in *Bull. Mosc.* 1847, i. 168.

W. Australia. Between King George's Sound and Swan River, *Drummond*, 3rd *Coll.* n. 59; *Preiss*, n. 218.

17. **C. villosus**, *R. Br.* in *Ait. Hort. Kew. ed.* 2: iv. 418. A low bushy shrub, more or less hirsute with spreading hairs, the branches thick and often corky. Leaves crowded, linear, terete or slightly flattened, mostly incurved, mucronate-acute, $\frac{1}{2}$ to 1 in. long. Flowers 5-merous, or rarely here and there 4-merous, in dense unilateral clusters of 4 to 8, closely sessile, but not immersed in the rhachis at the time of flowering. Calyx-tube globular, very hispid, about 2 lines diameter; lobes erect, not 1 line long. Petals glabrous, 2 lines long or rather more, often very deciduous. Staminal bundles $\frac{3}{4}$ to 1 in. long, nearly equal, the claws narrow, each with about 9 to 15 filaments. Fruiting-calyxes 3 to 4 lines diameter, globular, usually truncate, although occasionally 1 or 2 of the lobes are thickened and persistent as in *C. quadrifidus*. When many ripen in the same cluster, they are very closely packed or even connate at the base.—*DC. Prod.* iii. 211; *Bot. Reg.* t. 1099; *Lodd. Bot. Cab.* t. 92; *Schau.* in *Nov. Act. Nat. Cur.* xxi.



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27; Colla, Hort. Ripul. App. t. 15; *C. robustus*, Schau. l. c. 26, and in Pl. Preiss. i. 152.

W. Australia. Lucky Bay, *R. Brown*; King George's Sound, *Harvey*, *Baxter*; and thence to Swan River, *Drummond*, n. 55 and n. 87; 4th Coll. n. 61; Hampden, *Clarke*; foot of Konkoberup hills towards Cape Riche, *Preiss*, n. 213.—In describing his *C. robustus*, Schauer appears to have examined a flower accidentally 4-merous; in the specimen of *Preiss*'s, which I have seen, they are mostly at least 5-merous.

Var. *ericifolius*. Leaves all under $\frac{1}{2}$ in. long. Flowers smaller. Swan River, *Drummond*, 1st Coll.

18. **C. pinifolius**, *F. Muell. Fragm.* iii. 153. A shrub of about 2 ft., more or less hirsute with spreading hairs, or at length nearly glabrous, the branches thick and sometimes corky. Leaves very densely crowded, linear, terete, usually straight, rigid, acute and pungent-pointed, $\frac{1}{2}$ to 1 in. long. Flowers 4-merous, few together, in dense unilateral clusters, closely sessile, but not immersed in the rhachis. Calyx-tube globular, densely hirsute, about 2 lines diameter; lobes not 1 line long. Petals about 2 lines. Staminal bundles as in *C. villosus*, $\frac{3}{4}$ to 1 in. long, each with about 9 to 15 filaments. Fruiting-calyxes 3 to 4 lines diameter, adnate by their broad bases, with 2 thick opposite connivent lobes of $1\frac{1}{2}$ lines, the 2 others much smaller.

W. Australia, *Drummond*, 4th Coll. n. 62; Phillips Range, *Maxwell*.

19. **C. rupestris**, *Schau. in Nov. Act. Nat. Cur.* xxi. 26, and in Pl. Preiss. i. 152. Branches thick, with short crowded leaves, as in *C. villosus*, but the spreading hairs appear to be entirely wanting. Leaves linear-terete, mucronate-pungent, mostly incurved, rigid, rather thick, $\frac{1}{2}$ to above 1 in. long. Flowers 4-merous, 2 to 6 together in unilateral clusters or spikes, closely sessile, but not immersed in the rhachis. Calyx twice as large as in *C. villosus*, densely villous, the tube thick, ovoid-campanulate, fully 3 lines, the lobes 2 lines long. Staminal bundles as in *C. villosus*, $\frac{3}{4}$ to 1 in. long. Fruiting-calyxes very thick and hard, and often becoming glabrous, $\frac{1}{2}$ to $\frac{3}{4}$ in. long, including the 2 opposite thick hard connivent lobes.

W. Australia. Swan River, *Drummond*; *Preiss*, n. 211.

20. **C. quadrifidus**, *R. Br. in Ait. Hort. Kew. ed.* 2. iv. 418. An erect shrub, attaining 6 to 8 ft., glabrous or more or less hirsute with spreading hairs, as in *C. villosus*, but the branches not so thick. Leaves crowded, linear, from slender terete and mucronate-acute to flat clavate and very obtuse, $\frac{1}{2}$ to 1 in. long. Flowers 4-merous, clustered and closely sessile, but not immersed in the rhachis, forming usually dense unilateral spikes of 1 to 2 in. Calyx-tube ovoid-campanulate, scarcely 2 lines long, glabrous or closely and minutely pubescent; lobes short and broad, with scarious margins. Petals about 2 lines diameter, exceedingly deciduous. Staminal bundles of a rich crimson, $\frac{3}{4}$ to 1 in. long, nearly equal, the claws narrow, each with 15 to 20 or more filaments at or near the end. Fruiting-calyxes 2 to 3 lines diameter, with 2 opposite thick hard connivent lobes, the 2 others becoming obliterated.—*DC. Prod.* iii. 211; *Bot. Mag.* t. 1506; *Lodd. Bot. Cab.* t. 737; *Reichb. Ic. et Descr. Pl.* t. 9; *Schau. in Nov. Act. Nat. Cur.* xxi. 29, and in Pl. Preiss. i. 153; *C. lævigatus*, *Schau.* ll. cc. xxi. 30, and i. 153.

W. Australia. King George's Sound to Swan and Murchison rivers, and eastward to Cape Le Grand.

The specimens show three rather distinct forms:—

1. *acerosus*. Leaves slender, terete, sometimes above 1 in. long.—*Billottia acerosa*, Colla, Hort. Ripul. 20. t. 23; *C. purpureus*, Endl. in Hueg. Enum. 48.—Swan River, *Drummond*, 1st Coll.; *Preiss*, n. 207, 215, 217.

2. *normalis*. Leaves under 1 in., more or less flattened, mostly acute.—*C. clavatus*, Lodd. Bot. Cab. t. 1447; Schan. in Nov. Act. Nat. Cur. xxi. 28, and in Pl. Preiss. i. 152.—Lucky Bay, *R. Brown*; King George's Sound and to the eastward, *Preiss*, n. 210, and others; also *Drummond*, 1st Coll. n. 126.

3. *obtusus*. Leaves flat but thick, linear-clavate, obtuse, sometimes 1 line broad.—Murchison river, *Oldfield*.

21. **C. asper**, *Turcz. in Bull. Mosc.* 1849, ii. 25. Bushy and more or less hirsute with spreading hairs, the branches rather thick. Leaves crowded, linear, flat, obtuse or mucronate-acute, narrowed at the base, $\frac{1}{2}$ to 1 in. long, and mostly about 1 line broad, rigid and scabrous. Flowers 4-merous, in short dense clusters, closely sessile but distinct, the rhachis slightly excavated and dilated round their base. Calyx-tube broadly campanulate, glabrous or nearly so, about $1\frac{1}{2}$ lines, the lobes about 1 line long. Petals about 2 lines. Staminal bundles about $\frac{3}{4}$ to 1 in. long with many filaments, as in *C. quadrifidus*. Fruiting-calyxes ovoid-globular, thick, 3 to 4 lines diameter, usually crowned by 4 thick erect or connivent lobes, 2 opposite ones rather smaller than the 2 others.

W. Australia, *Drummond*, 3rd Coll. n. 52, 4th Coll. n. 60.—Near *C. quadrifidus*, but different in foliage and in the large fruits.

22. **C. homalophyllus**, *F. Muell. Fragm.* iii. 111. An erect shrub of 4 to 6 ft., our specimens quite glabrous. Leaves from oblong-cuneate to oblanceolate or almost linear, very obtuse, flat but thick, in some specimens all narrow and $\frac{1}{2}$ to 1 in. long, in others broad and $\frac{3}{4}$ to $1\frac{1}{2}$ in. long, in others again narrow and 1 to 2 in. long. Flowers 4-merous, sessile, but not immersed in the rhachis, forming unilateral spikes. Calyx-tube ovoid, nearly 2 lines long, rounded at the base; lobes very short and broad, spreading. Petals above 2 lines long, very thin and scarious, falling off as soon as the flower expands. Staminal bundles of a rich crimson, above 1 in. long, all nearly equal, the claws narrow, pinnately divided from the middle upwards; anthers not ciliate. Fruiting-calyxes nearly globular, thick, hard, and smooth, 3 to 4 lines diameter, with 2 of the lobes very thick, connivent and persistent, smooth, or breaking out into warty excrescences.

W. Australia. Murchison river, *Oldfield*; Champion Bay, *Walcott*.—Like the last, this is very closely allied to *C. quadrifidus*.

28. **EREMÆA**, Lindl.

Calyx-tube campanulate, adnate to the ovary at the base, the free part dilated or erect; lobes 5, triangular or acuminate. Petals 5, obovate or orbicular, spreading, usually scarious. Stamens indefinite, longer than the petals, more or less united in bundles opposite the petals, the filaments or free parts filiform; anthers obovoid, erect on a short connective continuous with the filament, the cells placed back to back and opening outwards in longitudinal slits. Ovary inferior, the summit flat or convex, villous, with a short

depression round the style, 3-celled, with several ovules in each cell, erect on a small basal placenta; style filiform, with a small stigma. Capsule enclosed in the hardened and enlarged usually smooth calyx-tube, entirely or more than half inferior, opening loculicidally in 3 cells. Perfect seeds (only observed in *E. ebracteata*) 1 or 2 in each cell, obovoid or cuneate, winged on the angles; testa thin; embryo straight; cotyledons broad and folded over each other, longer than the radicle.—Bushy shrubs, usually more or less hirsute. Leaves alternate, flat and short or narrow and heath-like, often crowded on the young-shoots. Flowers solitary or few, sessile, more or less surrounded by imbricate scale-like bracts, rarely entirely wanting.

The genus is limited to West Australia, differing from *Calothamnus* chiefly in inflorescence and in the anthers.

Flowers solitary, surrounded by numerous bracts.

Leaves flat, elliptical or lanceolate, rigid, recurved. Stamens distinctly 5-adelphous 1. *E. fimbriata*.

Leaves narrow, linear. Stamens very shortly and irregularly 5-adelphous.

Leaves pungent-pointed 2. *E. acutifolia*.
Leaves not pungent. Flowers small 3. *E. pilosa*.

Flowers 1 to 3, the bracts few and small or none.

Leaves linear. Stamens distinctly 5-adelphous 4. *E. ebracteata*.
Leaves ovate. Stamens irregularly 5-adelphous 5. *E. beaufortoides*.

1. ***E. fimbriata*, Lindl. Swan Riv. App. 11.** A coarse rigid shrub, attaining 3 or 4 ft., more or less hirsute with soft spreading hairs, especially on the young branches, margins of the leaves, and calyxes. Leaves from broadly elliptical to oblong-lanceolate, $\frac{1}{4}$ to $\frac{1}{2}$ in. long, rigid, erect, spreading or recurved, striate, flat or concave, obtuse or almost acute. Flowers solitary, sessile within the last leaves and surrounded by a considerable number of imbricate ovate scale-like bracts about as long as the calyx. Calyx-tube broad and open, about 2 lines diameter, silky-villous; lobes about as long as the tube. Petals about $2\frac{1}{2}$ lines long. Stamens very numerous, united into 5 flat bundles, the claws short and broad; slightly connected at the base. Ovary convex on the top. Fruiting-calyx very thick and hard, about $\frac{1}{2}$ in. diameter, crowned by the persistent lobes surrounding the somewhat prominent summit of the capsule.—Schau. in Pl. Preiss. i. 156.

W. Australia. Swan River and adjoining districts, *Drummond*, 1st Coll., also n. 47, and 64; *Preiss*, n. 254. Sandy woods near Mouger's Lake, Hill river, *Oldfield*.

Var. *brevifolia*. Leaves short, very broad, concave, squarrose, 7-nerved.—Valley of the Hutt river, *Oldfield*.

2. ***E. acutifolia*, F. Muell. Fragm. ii. 30.** Branches stout and rigid, more or less hirsute. Leaves crowded, spreading, linear, rigid and pungent-pointed, under $\frac{1}{2}$ in. long, ciliate or hirsute with long spreading hairs or glabrous when old. Flowers not so large as in *E. fimbriata*, solitary and sessile within the last leaves, surrounded by numerous imbricate linear or oblong-spathulate bracts shorter than the calyx. Calyx-tube broad and open, about 2 lines diameter, lobes herbaceous, about as long as the tube. Petals scarcely exceeding the calyx-lobes. Stamens very numerous, shortly and irregularly united into 5 bundles, a few filaments often almost free. Ovary flat-topped. Capsule convex, but not exceeding the persistent lobes of the fruiting calyx.

W. Australia. Champion Bay, *Walcott, Oldfield*.

3. ***E. pilosa***, *Lindl. Swan Riv. App.* 11. An erect or spreading heath-like shrub of 3 or 4 ft., more or less pubescent or hirsute, the branches much more slender than in *E. fimbriata*. Leaves linear, flat, semiterete or triquetrous, obtuse or nearly so, 2 to 3 or rarely 4 lines long, glabrous or hairy. Flowers much smaller than in *E. fimbriata*, solitary and sessile within the last leaves, surrounded by imbricate scale-like bracts, the inner ones nearly as long as the calyx-tube, the outer ones much smaller. Calyx-tube rather narrow, about $1\frac{1}{2}$ lines long, silky-pubescent; lobes triangular, much shorter than the tube. Petals about $1\frac{1}{2}$ lines long. Stamens very numerous, slightly united in 5 bundles, but with several filaments often free between them. Ovary slightly convex; stigma almost capitate. Fruiting-calyxes globular, very smooth and shining, above $\frac{1}{4}$ in. diameter, the capsule not prominent.—*Schau. in Pl. Preiss. i.* 157; *E. ericifolia*, *Lindl. l. c.*, *Schau. l. c.*; *Metrosideros pauciflora*, *Endl. in Hueg. Enum.* 50, according to *Schau*.

W. Australia. Swan River, *Drummond, 1st Coll.*, and *n.* 117; *Preiss, n.* 294, 295, 296; *Tone and Gordon rivers, Oldfield*.

4. ***E. ebracteata***, *F. Muell. Fragm. ii.* 29. A low bushy shrub, the branches and young leaves more or less hirsute. Leaves linear, obtuse or scarcely acute, not pungent, 3 to 4 lines long. Flowers rather large, 2 or 3 together, sessile at the ends of the branches, becoming lateral by the elongation of the shoot. Bracts scale-like but few, small, and very deciduous, so as to be rarely seen. Calyx-tube villous, rather narrow, nearly 2 lines long; lobes broadly-triangular or shortly acuminate, scarcely more than $\frac{1}{2}$ line long. Petals about 2 lines diameter. Stamens very numerous, united into 5 flat bundles, the claws nearly as long as the filaments. Ovary convex; stigma acute. Fruiting-calyx smooth, fully 4 lines long, the capsule filling the tube. Seeds when perfect bordered by 2 to 5 longitudinal very transparent wings; cotyledons very broad and folded lengthwise so as to embrace each other.

W. Australia. Murchison river, *Oldfield, Drummond, 6th Coll. n.* 78.

5. ***E. beaufortoides***, *Benth.* Apparently a straggling shrub, the young shoots more or less hirsute, at length nearly glabrous. Leaves recurved or spreading, broadly ovate, acute, rigid, 3- or 5-nerved, 2 to 3 lines long. Flowers rather large, usually 2 to 4 together at the ends of the branches, the imbricate scale-like bracts much shorter than the calyx and very deciduous. Calyx narrow, much wrinkled and apparently viscid, about 3 lines long, lobes triangular, acute, about 1 line long. Petals fully 2 lines diameter. Stamens very numerous, more or less united at the base, but scarcely forming regular bundles. Ovary convex on the top. Fruiting-calyxes ovoid or cylindrical, truncate, thick and very smooth, 6 lines long and about 4 lines diameter. Capsule much shorter than the calyx.

W. Australia. Between Moore and Murchison rivers, *Drummond, 6th Coll. n.* 79.

SUBTRIBE 4. EUCALYPTEÆ.—Leaves opposite or alternate, coriaceous, usually large. Flowers usually 3 or more, in umbels, sometimes reduced to heads or very rarely in cymes or solitary, the common peduncles axillary or in a terminal corymb or panicle. Calyx truncate, entire or remotely toothed.

Petals attached by a broad base, distinct or consolidated into an operculum. Stamens indefinite, in several series, free or obscurely united into 4 bundles; anthers various. Ovules indefinite in each cell. Embryo with the cotyledons longer than the radicle and often folded over it.

29. **ANGOPHORA**, Cav.

Calyx-tube turbinate-campanulate, adnate to the ovary at the base, the free part broad and open, 5-angled, truncate, with 5 small distinct teeth. Petals 5, attached by their broad base, herbaceous and aristate, with coloured margins, much imbricate in the bud, spreading and separately deciduous. Stamens numerous, free, in several series, filaments filiform; anthers versatile, the cells parallel, opening longitudinally. Ovary inferior, the flat summit glabrous, 3- or 4-celled, with many ovules in each cell, ascending on a peltate placenta; style subulate, with a capitate stigma. Capsule enclosed in and adnate to the hardened truncate persistent calyx-tube, opening loculicidally in 3 or 4 valves. Perfect seeds (where known) 1 in each cell, large, broad, very flat, peltately attached on the inner face; testa thin; embryo straight; cotyledons thin, flat, or folded over each other at the edge, deeply cordate, the radicle slightly clavate, scarcely protruding beyond the lobes of the cotyledons.—Trees or shrubs, usually glaucous, pubescent or hispid with bristly hairs. Leaves opposite or here and there alternate, coriaceous, penniveined. Flowers in umbel-like cymes arranged in terminal corymbs. Bracts exceedingly deciduous.

The genus is limited to Eastern Australia. It is very nearly allied to *Eucalyptus*, the petals similarly truncate at the base, but not connate, and the calyx-teeth although small are more prominent than in any *Eucalyptus*.

Leaves mostly or all sessile and cordate at the base.

Bark smooth and deciduous. Flowers rather large, not numerous.

Calyx-tube about 3 lines

1. *A. cordifolia*.

Bark rough and persistent. Flowers small and numerous. Calyx-

tube about 2 lines long

2. *A. subvelutina*.

Leaves petiolate, lanceolate, not cordate.

Bark rough and persistent. Flowers small and numerous. Calyx-tube

about 2 lines long.

3. *A. intermedia*.

Bark smooth and deciduous. Flowers rather large, not very numerous.

Calyx-tube about 3 lines long

4. *A. lanceolata*.

1. ***A. cordifolia***, Cav. *Ik.* iv. 21. *t.* 338. A tall shrub or small tree, more or less pubescent with minute rigid hairs or glaucous, the smaller branchlets and inflorescence hispid with bristly often reddish hairs, the older bark smooth and falling off in large flakes. Leaves ovate or oblong, mostly obtuse, nearly sessile and deeply cordate with rounded auricles, 2 to 4 in. long, glabrous and shining above, glaucous or pubescent underneath. Flowers rather large, 4 to 6 in each umbel, forming a rather dense terminal corymb. Calyx-tube 3 lines long and opening out nearly flat to $\frac{1}{2}$ in. diameter. Petals acutely acuminate, 3 to 4 lines diameter. Fruiting-calyx very hard, often $\frac{3}{4}$ in. broad at the top, and as much in length.—DC. *Prod.* iii. 222; *Metrosideros hispida*, Sm. in *Trans. Linn. Soc.* iii. 267, and *Exot. Bot.* t. 42; *Bot. Mag.* t. 1960; *Lodd. Bot. Cab.* t. 106; *M. hirsuta*, Andr. *Bot. Rep.* t. 281;

M. anomala, Vent. Jard. Malm. t. 5; *M. cordifolia*, Pers. Syn. Pl. ii. 25; *Eucalyptus hirsuta*, Link, Enum. Hort. Berol. ii. 31.

N. S. Wales. Port Jackson, *R. Brown*, *Sieber*, n. 971, and others.

2. ***A. subvelutina*, F. Muell. Fragm. i. 31.** A tree attaining a considerable size with a rough persistent bark as in *A. intermedia*, of which F. Mueller now thinks it may be a variety. Foliage and young shoots glaucous or minutely pubescent, with often a few bristles on the flowering branches and inflorescence. Leaves sessile or nearly so, ovate or ovate-lanceolate, mostly acute, all (excepting rarely the upper ones) cordate at the base with rounded auricles as in *A. cordifolia*, 2 to 4 in. long, the veins numerous but not usually so much so nor so fine as in *A. intermedia*. Flowers small, in loose corymbs, precisely as in *A. intermedia*. Fruiting calyxes 3 to 4 lines diameter.—*A. velutina*, F. Muell. Fragm. iv. 170.

Queensland. Brisbane, Burnett, and Boyd rivers, *F. Mueller*.

N. S. Wales. Grose river, *R. Brown*; Paramatta, *Cayley*, *Woolfs* (the inflorescence more bristly than usual); Clarence and Macleay rivers, *Beckler*.

3. ***A. intermedia*, DC. Prod. iii. 222.** A tree attaining a considerable size with a rough persistent fibrous bark, quite glabrous or slightly pubescent, or rarely with a few bristles on the inflorescence. Leaves distinctly petiolate, lanceolate or sometimes ovate-lanceolate, acutely acuminate, 2 to 4 in. long, or even more in some specimens. Flowers rather small, in loose corymbs or trichotomous panicles. Calyx usually about 2 lines long and 3 lines diameter at the top, but sometimes rather larger, the 5 ribs very prominent and the secondary ones also conspicuous; the teeth shortly subulate, rarely half as long as the tube. Fruiting calyx 3 to 4 lines diameter at the top and about as long.—*Metrosideros floribunda*, Sm. in Trans. Linn. Soc. iii. 267 (not of Ventenat).

Queensland. In the interior, *Mitchell*.

N. S. Wales. Grose river, *R. Brown*; Port Jackson, *Cayley*, *Woolfs*, and others; northward to Clarence river, *Beckler*, and New England, *C. Stuart*; southward to Twofold bay, *F. Mueller*.

Victoria. Mouth of the Genoa river, *F. Mueller*.

4. ***A. lanceolata*, Cav. Ic. iv. 22. t. 339.** A tree of considerable size, the bark deciduous in large smooth flakes as in *A. cordifolia*; branches and foliage glabrous and scarcely glaucous, or rarely a few bristles on the inflorescence. Leaves distinctly petiolate, lanceolate, acuminate, mostly 3 to 5 in. long, coriaceous, with numerous fine parallel pinnate veins. Flowers in rather dense terminal corymbs or short panicles, larger and more dense than in *A. intermedia*, rather smaller than in *A. cordifolia*. Calyx usually about 3 lines long and 4 lines broad at the top, the teeth very minute or at any rate shorter and thicker than in *A. intermedia*, and the secondary ribs often very short or quite inconspicuous. Fruiting calyx usually thick and very smooth.—DC. Prod. iii. 222; *Metrosideros costata*, Gært. Fruct. i. 171. t. 34. f. 2; *M. lanceolata*, Pers. Syn. Pl. ii. 25 (not the sp. with the same name l. c. 26); *M. apocynifolia*, Salisb. Prod. 351.

Queensland. Burnett river, *F. Mueller*; Boyd river, *Herb. F. Mueller*; Moreton bay, *C. Stuart*.

N. S. Wales. Port Jackson to the Blue Mountains, *Burton*, *A. and R. Cunningham*, and others, and in the interior north of Bathurst, *A. Cunningham*.

30. **EUCALYPTUS**, Lhér.(Eudesmia, *R. Br.* Symphyomyrtus, *Schau.*)

Calyx-tube obconical campanulate or oblong, adnate to the ovary at the base or rarely to the top, truncate and entire after the falling off of the operculum or with 4 minute teeth; the orifice closed by a hemispherical conical or elongated operculum covering the stamens in the bud and falling off entire when the stamens expand, this operculum usually simple (formed of the concrete petals?), thin or more frequently thick, fleshy or woody, the veins longitudinal, numerous and parallel or rarely anastomosing, the separation from the calyx-tube usually but not always marked in the bud by a distinct line; there is also frequently in the very young bud a very thin membranous external operculum more continuous with the calyx-tube and very rarely this external one persists nearly as long as the internal one and is as thick or nearly so. Stamens numerous, in several series, free or very rarely very shortly united at the base into 4 clusters; anthers versatile or attached at or close to the base, the cells parallel and distinct or divergent and confluent at the apex, opening in longitudinal slits or rarely in terminal pores, the connective often thickened into a small gland either separating the cells or behind them when they are contiguous. Ovary inferior, the summit glabrous, flat, convex or conical, 3- to 6-celled, with numerous ovules in each cell, in 2 to 4 rows, on an adnate or oblong and peltate axile placenta; style subulate or rarely almost clavate, with a small truncate capitate or rarely peltate stigma. Fruit consisting of the more or less enlarged truncate calyx-tube enclosing the capsule, usually of a hard and woody texture and interspersed with resinous receptacles, the persistent disk usually thin and lining the orifice of the calyx-tube when the capsule is deeply sunk; concave, horizontal, convex, or conically projecting, and more or less contracting the orifice when the capsule is not much shorter than, as long as, or longer than the calyx-tube; the capsule always adnate to the calyx-tube although often readily separable from it when quite ripe and dry, very rarely protruding from the orifice left by the disk before maturity, but opening at the apex in as many valves as there are cells, which often protrude, especially when acuminate by the persistent and split base of the style. Seeds for the greater part abortive but more or less enlarged, variously shaped and of a hard apparently uniform texture, one or very few in each cell perfect, usually ovoid or flattened and ovate when solitary, variously shaped and angular when more than one ripen; testa black, dark coloured, or rarely pale, smooth or granular, not hard, in a few species expanded into a variously-shaped wing; hilum ventral or lateral. Embryo with broad cordate 2-lobed or bipartite cotyledons, folded over the straight radicle but otherwise flat.—Shrubs or trees, attaining sometimes a gigantic size, secreting more or less of resinous gums, whence their common appellation of *Gum-trees*. Leaves in the young saplings of many species, and perhaps all in some species, horizontal, opposite, sessile, and cordate, in the adult shrub or tree of most species vertical (or sometimes horizontal), alternate, petiolate and passing more or less from broadly ovate to lanceolate acuminate and falcate, always rigid whether thick or thin, pinniveined, the midrib conspicuous; the primary veins often scarcely perceptible when the leaves are thick; in some species few, irregular, oblique, and anastomosing and passing

through every gradation from that to numerous parallel diverging or transverse veins, always converging into an intramarginal vein, either close to or more or less distant from the edge, the intermediate reticulate veinlets rarely very prominent, and scarcely any when the primary veins are closely parallel. Flowers large or small, in umbels or heads, usually pedunculate, rarely reduced to a single sessile flower, the peduncles in most species solitary and axillary or lateral (by the abortion of the floral leaves) either at the base of the year's shoot below the leaves or at the end of the older shoot above them. Bracts and bracteoles when present so early deciduous as only to have been observed in a very few species.

With the exception of two species extending to Timor, and two or three or perhaps one single somewhat doubtful species from the Indian Archipelago, the Eucalypti are all Australian, where they constitute a large portion of the forest vegetation. Their size and abundance, as well as the great value of their timber and other products, cause them to be well known to colonists under their local appellations of *Gum*-, *Mahogany*-, and *Box-trees*, *Stringy-barks*, *Iron-barks*, etc., but to the botanist who is unable to compare them in a living state, the due limitation and classification of their species present almost insuperable obstacles. The extraordinary differences in the foliage of many species at different periods of their growth add much to the ordinary difficulties arising from the gradual transition of varieties, races, or species one into the other; moreover, a considerable portion of our herbarium specimens have been gathered to illustrate collections of woods by persons little acquainted with botany, and are but too frequently not in a state to supply the most essential characters. The old division of the genus according to the opposite or alternate leaves is now found to be quite fallacious, so many species having them opposite at an early stage and alternate when full-grown, the second character generally made use of in books, the comparative length of the operculum and calyx-tube is too indefinite for practical use. F. Mueller has proposed sections founded on the nature of the bark, of the value of which I am totally unable to judge, nor have I any means of availing myself of them, for the specimens themselves never show the character and a large proportion of them are either unaccompanied by any notes of it, or the collectors' notes are from various causes indefinite, unreliable, or even contradictory. I have thus been compelled to establish groups upon such characters as appeared to me the most constant among those which are supplied by the specimens; in the first place upon the form of the anthers and secondly upon that of the fruit, and in some cases on the inflorescence or the calyx. It must be admitted, indeed, that these groups, distinct as they may be in the typical species, pass very gradually into each other through intermediate forms, but I have endeavoured to supply cross-references to facilitate the determination of dried specimens in doubtful cases. It is to be hoped that, in the elaborate monograph of the genus with plates representing all the species promised by Dr. Mueller in his 'Fragmenta,' he, from his knowledge of the Gum-trees in a living state, will be able to give us a truly natural arrangement founded upon the proposed cortical or any other system which experience may induce him to adopt. In the meantime, as far as I can gather from the information supplied, it appears to me that among large trees the majority of the "Stringy-barks" are to be found in my first series with reniform anthers, and of the "Iron-barks" and "Box-trees" in the following three series with very small globular or truncate anthers, that other marked peculiarities in the bark are typical rather of species than of groups, and that, among shrubs or small stunted or scrubby trees, the cortical character is of very little avail, even for the discrimination of species.

A few notes may be required on some of the minor characters which I have made use of or neglected in the specific diagnoses and descriptions.

I have thought it generally useless to describe the branchlets terete or angular, for in those species such as *E. pruinosa*, *E. tetrayona*, *E. tetraptera*, etc., where the angles are often so prominent as to be almost transformed into wings, there occur branches, often on the same specimen, quite terete.

The form, size, and venation of the leaves described has always been taken from those of the flowering branches of what have been supposed to be adult trees or shrubs; when not

stated to the contrary, they are always alternate and petiolate. A great majority of the species are now known to have on the young sapling, or even on adventitious barren branches of older trees, opposite sessile broad or cordate leaves passing gradually into the ordinary alternate petiolate narrower ones. It appeared quite useless in any manner to describe these sapling leaves in the several species where they have been observed, for they present at once the greatest similarity in the corresponding leaves of different species and the greatest dissimilarity in the different leaves of the same species or specimen. Where in the following pages the leaves are described as opposite and sessile, it is meant that they retain that form on the flowering branches. So also in the venation, characteristic as it often is in the lanceolate leaves, the specific modifications disappear in a great measure as the leaf gets broader, and it is only very rarely that there are any appreciable specific differences in the venation of the sapling leaves. A very few at that age, especially in the *Corymbosæ* series, appear to be already alternate, but to have the lamina peltately inserted on the petiole above the base, but our data on that point are but very scanty.

Diagnostic characters are sometimes taken from the position of the leaves, horizontal or vertical, and the comparative colour of their surfaces, dark above and pale underneath or similar on both sides, but this can rarely be ascertained from dried specimens. In general, it would appear that the horizontal leaves have the two surfaces different and the veins very divergent or transverse, and the vertical leaves have the surfaces similar and the veins oblique; so that where the leaves of the adult tree are alternate lanceolate and foliate with *oblique* veins they are usually vertical, whilst the opposite ones of the sapling of the same species are horizontal.

The inflorescence is often characteristic of species or even of groups, but cannot always be taken absolutely in single specimens. The umbels are as a rule universal, but are always in a very few large-flowered species, and occasionally in others, reduced to a single flower. The length of the peduncle supporting it, either absolute or compared to that of the petiole, to which importance is given in old diagnoses, appears to be rarely available as a specific character. Rarely above 1 in., generally varying from $\frac{1}{2}$ to $\frac{3}{4}$ in. and sometimes entirely disappearing, it is only in the few cases where it is constantly long or short as compared to these dimensions that I have referred to it. These peduncles with their umbels are, however, in their general arrangement, of some importance, constituting three types:—1. axillary or lateral, that is, solitary in the axils of the leaves or along the branchlet above or below the leaves; 2. several together in short simple panicles at the end of the branchlet or in the axils of the leaves, and 3. in a compound terminal corymbose panicle. But these forms appear to pass into each other very much in imperfect specimens. In the first and simplest form, the floral leaves of the uppermost umbels or of very short axillary flowering branches are sometimes quite abortive, converting the inflorescence into the second form; in this again the lower axillary panicles may be occasionally reduced to single umbels as in the first, and even in the terminal corymb, characteristic of the *Corymbosæ*, a single specimen may here and there show an axillary umbel, or after flowering the branches of the corymb may occasionally though rarely grow out into leafy shoots, leaving the fruiting umbels lateral below the new leaves.

The form and dimensions of the calyx-tube (*hypanthium* of Schauer, *cupula* of De Candolle) are taken when the stamens are expanded but still adhering; after they fall, it often alters so much that it neither indicates the form it had in flower nor yet that which it will assume in fruit.

The operculum described is always the single one, probably representing the petals, as it appears when ready to fall off for the expansion of the stamens. The outer one, of whose nature there is still much doubt, exists probably in nearly all species at an early stage, but it is usually thin and falls off too soon to be worth mentioning in descriptions. Where, as in *E. platyphylla*, it persists rather longer, it appears to do so in a very variable degree in the same species. It is only, as far as hitherto observed, in *E. variegata* and *E. eximia* that it is more constantly persistent till nearly the time of expansion of the flower, and equals or exceeds in thickness and consistency the inner one.

The dimensions given for the stamens refer to the outer ones; the inner ones are almost universally gradually shorter.

The style is omitted in the specific descriptions, because I have been unable to ascertain the constancy of the few differences observed. It is certainly longer in some species, thicker

in others, the stigma a mere point or more or less dilated, but these differences appear to be almost as frequently individual as specific.

The number of cells of the ovary is also very rarely a guide to the species. They generally vary from 3 to 4 or from 4 to 5, very rarely 6, and not constantly so in any species I have seen. In *E. phœnicea* I have only seen two; but as the specimens known are but few, and all probably gathered from one tree, we have no means of judging whether the character is constant.

For similar reasons I have very seldom mentioned the seeds; for great as are the differences observed, we have very seldom means of judging whether they are individual or specific. The fruiting specimens in our herbaria and museums have generally shed their seeds, at least the perfect ones. The abortive seeds are usually numerous in the capsule, unimpregnated and of a hard granular uniform texture, but enlarged, especially those near the top of the capsule, and variously shaped according to the degree of mutual pressure, the several seeds of the same specimen often differing more from each other than the corresponding ones of different species. Of perfect seeds there generally only ripen either 2 or 3 or a single one in each cell, and their shape is accordingly modified. They are, moreover, always near the orifice of the capsule and the first to be shed, and are thus unknown in a large portion of the species. The most remarkable are those of the majority of the *Corymbosæ*, which are large and more or less expanded into a membranous wing; but even that character would appear to be of little value if we consider that species so closely allied in every other respect as *E. calophylla* and *E. ficifolia*, or *E. citriodora* and *E. corymbosa*, only differ from each other in their wingless or winged seeds; that even this difference is proved only by the examination of seeds most probably derived from a single tree of each, and that the wing, when it exists, varies remarkably in size and shape in different seeds from the same specimen.

The embryo in *Eucalyptus* appears always to have the cotyledons folded over the radicle, but varies much in the shape of the cotyledons, very broad or rather narrow, entire, cordate, 2-lobed or 2-partite, and in the comparative length of the radicle, and these differences are very likely of specific constancy; but there are but two or three species in which I have been able to examine the embryo taken from several specimens, and not many where I have had perfect seeds enough to spare more than one or even a single one for dissection. I have therefore thought it very unsafe to rely upon any of the modifications observed for specific distinction.

As some further guide to the determination of species, though often a fallacious one, I have taken the following index of colonial names from the collectors' notes.

- "Black Butt" = *E. pilularis*, *hæmastoma*, *patens*, *ficifolia*.
- "Bloodwood" = *E. marginata*, *corymbosa*, *eximia*.
- "Box" = *E. amygdalina*, *hemiphloia*, *brachypoda*, *viminalis*.
- "Bastard-Box" = *E. polyanthemus*.
- "White Box" = *E. albens*.
- "Yellow Box" = *E. melliodora*, *bicolor*.
- "Cider-tree" = *E. Gunnii*.
- "Flintwood" = *E. pilularis*.
- "Blue Gum" = *E. hæmastoma*, *globulus*, *botryoides*, *megacarpa*, *viminalis*, *tereticornis*, *diversicolor*.
- "Drooping Gum" = *E. Risdoni*, *viminalis*.
- "Flooded or Swamp Gum" = *E. coriacea*, *decipiens*, *botryoides*, *rostrata*, *rudis*.
- "Green Gum" = *E. stellulata*.
- "Grey Gum" = *E. saligna*, *resinifera*.
- "Lead Gum" = *E. stellulata*.
- "Red Gum" = *E. amygdalina*, *melliodora*, *odorata*, *rostrata*, *tereticornis*, *resinifera*, *Stuartiana*, *calophylla*.
- "Risdon Gum" = *E. Risdoni*.
- "Rusty Gum" = *E. eximia*.
- "Spotted Gum" = *E. hæmastoma*, *goniocalyx*, (*citriodora* ?), *maculata*.
- "Turpentine Gum" = *E. Stuartiana*.
- "Weeping Gum" = *E. coriacea*, *viminalis*.

"White Gum" = *E. stellulata*, *coriacea*, *amygdalina*, *paniculata*, *hæmastoma*, *albens*, *botryoides*, *saligna*, *goniocalyx*, *rostrata*, *Stuartiana*, *redunca*.

"York Gum" = *E. loxophleba*.

"Gum-top" = *E. virgata*.

"Hicory" = *E. Stuartiana*, *resinifera*.

"Iron-bark" = *E. (macrorhyncha?)*, *leucorylon*, *hemiphloia*, *siderophloia*, *melanophloia*, *drepanophylla*, *crebra*.

"Leather-Jacket" = *E. resinifera*.

"Lignum-Vitæ" = *E. polyanthemos*.

"Mahogany (Bastard)" = *E. marginata*, *botryoides*; (Forest) *E. resinifera*, var.; (Red) *E. resinifera*; (Swamp) *E. robusta*, *botryoides*; (White) *E. pilularis*, var. *acmenioides*, *robusta*.

"Messmate" = *E. obliqua*.

"Mountain Ash" = *E. virgata*, *hæmastoma*; (Black) *E. leucorylon*.

"Peppermint" = *E. coriacea*, *amygdalina*, *capitellata*, *piperita*, *odorata*, *viminalis*.

"Spearwood" = *E. doraterylon*.

"Stringy-bark" = *E. amygdalina*, *obliqua*, *capitellata*, *macrorhyncha*, *piperita*, *pilularis*, *tetradonta*.

"Woolly Butt" = *E. longifolia*.

SERIES I. **Renantheræ**.—Stamens all perfect or very rarely (especially in *E. virgata*) some of the outer ones with abortive anthers; anthers reniform or broad and flat, the cells divergent or at length divaricate, contiguous and usually confluent at the apex.

The species are all Eastern except *E. marginata* and *E. buprestina*, and all extratropical except *E. piperita* and *E. pilularis*.

(The truncate anthers of 17. *E. leucorylon* and a few others among the *Heterostemones* sometimes open out when old so as to assume almost the appearance of the *Renantheræ*.)

Leaves of the flowering branches sessile, opposite, cordate or connate.

Calyx-tube contracted at the top after flowering. Leaves mostly connate

5. *E. Risdoni*.

Calyx-tube expanded at the top after flowering. Leaves rather large, cordate and broad

8. *E. dives*.

Leaves of the flowering branches alternate and petiolate.

Leaf-veins not numerous, very oblique, a few almost parallel to the midrib, giving the leaf a 3- to 7-nerved appearance, sometimes inconspicuous when the leaf is narrow and thick.

Flowers small, in almost sessile umbels. Buds narrow-oblong.

Leaves acute at both ends, usually narrow

1. *E. stellulata*.

Flowers in distinctly pedunculate umbels. Buds clavate.

Leaves usually rather broad. Peduncles terete or slightly flattened. Fruit obovoid-globose, the rim flat or scarcely concave

2. *E. coriacea*.

Leaves long and falcate. Peduncles much flattened. Fruit narrow-obovoid, contracted at the base, the rim usually concave

3. *E. virgata*.

Leaf-veins not close, often very oblique but all inserted along the midrib.

Fruit pear-shaped obovoid or subglobose, more or less contracted at the orifice, the rim concave, the capsule sunk. Flowers pedicellate.

Buds clavate. Eastern species.

Leaves very thick, mostly straight or nearly so and under 3 in. Fruit obovoid-cylindrical, above $\frac{1}{2}$ in. long

9. *E. obtusiflora*.

Leaves mostly very oblique and rather broad. Fruit obovoid or pear-shaped, much under $\frac{1}{2}$ in. Peduncles terete or nearly so

7. *E. obliqua*.

- Leaves long, falcate, the veins inconspicuous or very oblique. Fruit narrow-obovoid, under $\frac{1}{2}$ in. Peduncles much flattened. 3. *E. virgata*.
- Buds obovoid. Western species. Leaves usually under 3 in. and prominently veined. Fruits about 1 in. diameter 10. *E. buprestium*.
- Fruit subglobose-truncate, the rim usually flat. Buds clavate. Leaves narrow and thin, or broader thick and smooth. Operculum convex or hemispherical, smooth or papillose. Lower leaves and often those of the flowering branches opposite and connate. Bark smooth and deciduous. 5. *E. Risdoni*.
- Leaves of the flowering branches all alternate and lanceolate, oblong or linear; lower ones when opposite not connate. Bark of the trunk usually rough and persistent 4. *E. amygdalina*.
- Operculum depressed and rugose. Leaves under 3 in. long 6. *E. coccifera*.
- Fruit subglobose, much contracted at the orifice, the rim thin, the capsule sunk. Buds ovoid. Operculum as long as the calyx-tube. Leaf-veins fine 14. *E. piperita*.
- Fruit subglobose or depressed-globose, the rim very convex or prominent. Buds ovoid or obovoid. Operculum usually as long as or longer than the calyx-tube.
- Flowers and fruits sessile. Leaves of *E. obliqua*. Operculum very obtuse 11. *E. capitellata*.
- Flowers and fruit pedicellate. Leaves of *E. obliqua*. Operculum acuminate or conical. Calyx-border prominent in the bud 13. *E. macrorhyncha*.
- Flowers and fruit pedicellate. Leaves very thick and rigid, and often nearly straight 12. *E. santalifolia*.
- Leaf-veins numerous, fine and parallel (not very close). Buds ovoid-acuminate or oblong. Operculum as long as or longer than the calyx-tube.
- Stamens much inflected in the bud. Leaf-veins oblique or diverging, often scarcely visible on the upper surface. Fruit under $\frac{1}{2}$ in. diameter. Eastern species.
- Operculum about as long as the calyx-tube. Fruit contracted at the orifice. Peduncles terete or nearly so . . . 14. *E. piperita*, var.
- Operculum longer than the calyx-tube. Fruit straight or scarcely contracted at the orifice.
- Peduncles terete or nearly so. Umbels mostly in a terminal panicle. Fruit-rim usually thin and concave 15. *E. pilularis*, var. *acmenioides*.
- Peduncles more or less flattened. Umbels mostly axillary. Fruit-rim usually broad and flat 15. *E. pilularis*.
- Stamens flexuose, but not at all or scarcely inflected in the bud. Leaf-veins more transverse. Fruit above $\frac{1}{2}$ in. diameter. Western species 16. *E. marginata*.

SERIES II. *Heterostemones*.—Outer stamens anantherous or with small abortive anthers; anthers of the perfect ones small, globular, or truncate, the cells contiguous, opening in pores or in oblong slits, sometimes at length confluent.

The species are all Eastern, one only (*E. gracilis*) extending also into Western Australia, and all extratropical, two only (*E. hamastoma* and *E. microcorys*) also tropical or sub-tropical.

(The outer stamens appear also to be anantherous or with abortive anthers only in 3. *E. virgata*, and perhaps occasionally but only in a slight degree in some others of the *Renantheræ*, and sometimes but rarely in 27. *E. bicolor*, amongst *Porantheræ*, but I have never found them so in any of the other species.)

Umbels all axillary or lateral. Buds ovoid or rarely obovoid.

Peduncles terete or nearly so.

Flowers large, usually 3 to 5 in the umbel. Leaves very coriaceous 17. *E. leucorylon*.

Flowers small, 4 to 8 in the umbel.

Leaves rather thin. Buds ovoid, often acuminate. Flowers distinctly pedicellate 18. *E. melliodora*.

Leaves thick, narrow, black-dotted, mostly under 3 in. long. Buds obovoid, tapering into short pedicels or nearly sessile 19. *E. gracilis*.

Peduncles flattened. Leaves thick, long, falcate, not dotted. Buds ovoid, often acuminate 3. *E. virgata*.

Upper umbels forming a terminal corymb or panicle. Buds obovoid.

Leaves thick, narrow, black-dotted, veins scarcely visible. Flowers small. Pedicels short 19. *E. gracilis*.

Leaves rather thin, veins very oblique, often distinct. Flowers small. (Anthers usually all perfect) 27. *E. bicolor*.

Leaves rather thick, not dotted, veins numerous and more regular but fine, sometimes indistinct. Flowers moderate-sized or rather large, distinctly pedicellate 20. *E. paniculata*.

Upper umbels forming a terminal corymbose panicle. Buds clavate, tapering into a rather long pedicel.

Buds very angular. Operculum often conical 20. *E. paniculata*.

Buds not angular. Operculum very short and obtuse.

Leaves very coriaceous, with oblique veins (as in *E. obliqua*).

Fruit pear-shaped with a broad flat rim 21. *E. hæmastoma*.

Leaves rather thin, with almost transverse veins. Fruit oblong 22. *E. microcorys*.

SERIES III. Porantheræ.—*Stamens all perfect (except rarely in E. bicolor, and perhaps in E. polyanthemus); anthers small and globular, or broader than long, the cells distinct, opening in small circular pores, sometimes extending at length into oblong slits.*

The species are all Eastern or tropical, including most of the "Box-trees," *E. uncinata* alone extending also into West Australia. The leaves when narrow have always an oblique irregular venation. The operculum is short, and the capsule sunk in the fruit.

This series passes through *E. bicolor* into the *Heterostenones*, and when fully out the anthers sometimes are very nearly those of the *Micrantheræ*, whilst amongst *Micrantheræ* there are several species, especially 36. *E. albens*, 38. *E. siderophloia*, 32. *E. stricta*, and 34. *E. decipiens*, in which the anther-cells are so short that their slits are at first little more than pores.

Umbels few-flowered, usually several together, in short leafless axillary or terminal panicles, or in terminal corymbs. Operculum short, obtuse.

Leaves sessile, opposite, cordate or ovate. Flowers in terminal corymbose panicles 23. *E. pruinosa*.

Leaves orbicular or ovate, obtuse, alternate on long petioles. Flowers rather large, in a terminal corymbose panicle. Calyx about 3 lines diameter 24. *E. oligantha*.

Flowers small, mostly in short dense axillary or terminal panicles. Calyx not above 2 lines diameter 25. *E. polyanthemus*.

Leaves ovate, acute or broadly lanceolate, very coriaceous 26. *E. Behriana*.

Leaves oblong or lanceolate, rather thin 27. *E. bicolor*.

Umbels several-flowered, often solitary in the axils, the upper ones in terminal corymbose panicles. Operculum usually conical, about as long as the calyx-tube. Pedicels short.

- Leaves linear, thick, the oblique veins seldom visible. Umbels all axillary 32. *E. stricta*.
 Leaves (of *E. obliqua*) broad or falcate, very coriaceous . . . 30. *E. hemiphloia*.
 Leaves coriaceous, with numerous fine diverging veins, sometimes inconspicuous 38. *E. siderophloia*.
 Umbels mostly axillary, or lateral and solitary. Leaves ovate-lanceolate to linear.
 Leaves large, broad, very glaucous. Buds long and narrow. Operculum acuminate 36. *E. albens*.
 Leaves lanceolate, rigid, without black dots. Operculum short, obtuse. Filaments flexuose 28. *E. odorata*.
 Leaves usually narrow, rigid, copiously black-dotted. Operculum as long as or longer than the calyx-tube. Outer filaments slender, folded in with an acute angle 29. *E. uncinata*.
 (See also 35. *E. corynocalyx*, with the filaments of *E. uncinata*, but a long calyx and longer openings to the anthers.)

SERIES IV. **Micrantheræ**.—*Anthers very small, globular, or broader than long, with globular distinct cells opening in lateral slits.*

The species, with the exception of the Western *E. micranthera* and *E. decipiens*, are all Eastern or tropical, and include most of the "Iron-barks,"—one species, *E. brachypoda*, extending also into the west. The series, which closely connects the *Porantheræ* with the *Normales*, is by no means a distinctly marked one. The anthers have at first sight, in their shape and small size, the appearance of the former, whilst their dehiscence is almost or quite that of the *Normales*. As in *Porantheræ*, the operculum is short, rarely slightly longer than calyx-tube, and the capsule more or less sunk, although the points of the valves often protrude.

- Leaves all or mostly sessile, opposite and cordate 39. *E. melanophloia*.
 (See also 23. *E. pruinoso*, amongst *Porantheræ*.)

Leaves of the flowering branches ovate-lanceolate to linear-coriaceous, with oblique or inconspicuous veins. Umbels axillary or lateral (except sometimes *E. Bowmani*). Eastern species.

- Flowers sessile in the head. Leaves narrow, thick, the veins inconspicuous. Operculum short, obtuse 31. *E. cneorifolia*.

Calyx-tube tapering into a very short, sometimes scarcely distinct pedicel.

- Leaves narrow, thick, the veins inconspicuous. Operculum short. Peduncles very short, lateral 32. *E. stricta*.

Leaves mostly lanceolate-falcate or ovate-lanceolate, obliquely veined.

- Calyx-tube much longer than broad. Operculum conical or acuminate. Fruit cylindrical. Foliage glaucous or white 36. *E. albens*.

- Calyx-tube turbinate. Operculum very obtuse. Foliage not white 37. *E. Bowmani*.

Leaves mostly lanceolate-falcate, the veins inconspicuous.

- Upper umbels usually paniculate 38. *E. siderophloia*.

Flowers distinctly pedicellate.

- Leaves narrow, thick, apparently veinless. Calyx-tube not 2 lines diameter, turbinate 32. *E. stricta*.

- Leaves lanceolate, falcate. Calyx-tube above 2 lines diameter, turbinate 37. *E. Bowmani*.

- Leaves ovate-lanceolate or lanceolate. Calyx-tube long, cylindrical. Operculum very flat 35. *E. corynocalyx*.

(See also 103. *E. oleosa*, and its allies amongst *Normales Inclusæ*, which have the anthers almost globular.)

Leaves of the flowering-branches mostly lanceolate or falcate (sometimes broad in *E. decipiens*), coriaceous with numerous fine diverging veins, often scarcely conspicuous.

Flowers sessile or nearly so. Umbels all axillary or lateral.

Western species.

Operculum obtuse, shorter than the calyx-tube 33. *E. micranthera*.

Operculum acuminate, longer than the calyx-tube 34. *E. decipiens*.

Flowers on distinct but short and angular pedicels. Upper umbels usually in a short terminal panicle. Eastern species 38. *E. siderophloia*.

Leaves of the flowering-branches from ovate and obtuse to narrow-lanceolate and acuminate, with numerous fine parallel diverging or transverse veins, usually visible. Flowers small, the upper umbels often in a short panicle. Operculum about as long as the calyx-tube.

Leaves usually long and narrow.

Fruit subglobose, truncate, about 3 lines diameter, scarcely contracted at the orifice 40. *E. drepanophylla*.

Fruit ovoid, truncate, contracted above the middle, about 3 lines long 41. *E. trachyphloia*.

Fruit from nearly globose to narrow-ovoid, contracted at the orifice, not above 2 lines diameter 43. *E. crebra*.

Fruit of *E. crebra*, but 4 lines diameter 42. *E. leptophleba*.

Fruit hemispherical, very open, not above 2 lines diameter, the valves protruding 44. *E. brachypoda*.

Leaves ovate or oblong, very obtuse. Fruit scarcely above 1 line diameter 45. *E. brachyandra*.

SERIES V. Normales.—*Stamens all perfect; anthers oblong-ovate or nearly globose, the cells perfectly distinct, parallel (either contiguous with the connective-gland behind them, or back to back, with the connective between them), and opening longitudinally.*

(In 103. *E. oleosa*, and its allies, the anthers are smaller, almost globular, and passing into those of the *Micrantheræ*.)

SUBSERIES I. Subsessiles.—*Flowers axillary or lateral, usually large, 1 to 3, sessile or nearly so on the stem, or on an exceedingly short terete or angular peduncle.*

Leaves all opposite, sessile, cordate orbicular or ovate.

Leaves large. Flowers solitary, the calyx about 1½ in. diameter 46. *E. macrocarpa*.

Leaves mostly under 3 in. Flowers 3 together on a very short common peduncle. Calyx under ½ in. diameter.

Leaves crenate. Calyx obtuse at the base 47. *E. cordata*.

Leaves quite entire. Calyx tapering at the base 48. *E. pulverulenta*.

Leaves, at least on the flowering-branches, alternate and petiolate.

Flowers sessile on the stem. Buds usually very rugose or ovate.

Calyx about ½ in. diameter.

Leaves falcate-acuminate, mostly above 6 in. long 49. *E. globulus*.

Leaves broad, obtuse, rarely above 3 in. 50. *E. alpina*.

Flowers 3 together, on a very short common peduncle. Buds smooth, about ½ in. diameter. Leaves ovate or lanceolate, acuminate. 51. *E. cosmophylla*.

(In a few specimens of 63. *E. incrassata*, and perhaps some others of the *Robustæ*, in 34. *E. decipiens*, 90. *E. platyphylla*, and a few others, the peduncles are occasionally so much reduced as to bring them almost into the *Subsessiles*.)

SUBSERIES II. Recurvæ.—*Flowers axillary or lateral, often large, usually 3 or rarely 5 together, pedicellate on a recurved terete peduncle. Calyx-tube turbinate or urceolate. Leaves alternate, thick.*

Calyx-tube turbinate, above 1 in. diameter. Disk forming a raised ring within the stamens 52. *E. pyramidalis*.

Calyx-tube turbinate, not above $\frac{1}{2}$ in. diameter. Disk flat or concave, but often raised above the calyx-border.

Operculum as long as or scarcely longer than the calyx-tube.

Eastern species 53. *E. longifolia*.

Operculum much longer than the calyx-tube. Western species . 54. *E. conoidea*.

Calyx-tube urceolate, about $\frac{1}{2}$ in. long. Ovary and capsule deeply sunk 55. *E. urnigera*.

Calyx-tube ovoid? Fruit ovoid, $\frac{3}{4}$ in. diameter, the disk or rim very concave 56. *E. cæsia*.

(104. *E. decurva*, 105. *E. dorytroylon*, and a few others among the *Inclusæ*, have loose reflexed umbels, but more numerous and smaller flowers. 17. *E. leucorylon*, often resembles *E. longifolia*, but with very different stamens, and some specimens of 74. *E. occidentalis*, have loose recurved 3-flowered umbels, but with the long operculum and straight stamens of the *Cornutæ*.)

SUBSERIES III. Robustæ.—Peduncles axillary or lateral, or very rarely the upper ones in a terminal corymb, usually flattened, each with several (rarely only 1) large or moderate-sized flowers, sessile or tapering into thick pedicels. Leaves usually thick and alternate, or in *E. Preissiana* often opposite. Rim of the fruit concave, with a sunk capsule, except in the last four species.

(Some varieties of *E. dumosa* and *E. incrassata* have pedicellate flowers and more terete peduncles connecting them with the *Inclusæ*, and *E. robusta* and *E. botryoides* are near *E. resinifera* and its allies in foliage, but very different in fruit. *E. vernicosa* connects the series with *E. viminalis* amongst *Ersertæ*, as *E. grossa* does with the *Cornutæ*.)

Leaves with numerous close parallel very diverging or transverse veins. Fruit ovoid-oblong or urceolate, the capsule deeply sunk.

Calyx ribbed or winged, 1 to 2 in. long.

Peduncles 1-flowered. Fruit 4-winged. Western species . 57. *E. tetraptera*.

Peduncles 3- to 5-flowered. Fruit several-ribbed. Tropical species 58. *E. miniata*.

Calyx not ribbed. Fruit rarely above $\frac{1}{2}$ in. long. Eastern species.

Buds narrow, acuminate, $\frac{1}{2}$ in. long or more. Operculum as long as or longer than the calyx-tube 56. *E. robusta*.

Buds ovoid-oblong, not above 4 lines long. Operculum not so long as the calyx-tube 60. *E. botryoides*.

(See also 95. *E. saligna*, and its allies, which have the foliage and almost the inflorescence of *E. botryoides*, but a very different fruit; 99. *E. concolor*, from W. Australia, with a hard globular fruit; and 90. *E. platyphylla*, from N. Australia, with large broad leaves.)

Leaves with more oblique and irregular veins often inconspicuous.

Fruit ovoid-truncate, the capsule sunk.

Operculum obtuse or umbonate, much shorter than the calyx-tube. Leaf-veins inconspicuous. Peduncles not much flattened 62. *E. dumosa*.

Operculum umbonate or conical, shorter than the calyx-tube. Peduncles much flattened 61. *E. goniocalyx*.

Operculum rostrate, often longer than the calyx-tube 63. *E. incrassata*.

Operculum oblong-obtuse, thin and smooth, as in many *Cornutæ* 65. *E. grossa*.

(See also 100. *concolor* and 101. *E. goniantha*, allied to *E. oleosa* amongst *Inclusæ*.)

Leaves thick, with irregular or inconspicuous veins. Rim of the fruit or disk flat or slightly convex or concave.

Flowers small. Fruit flat-topped, under $\frac{1}{2}$ in. diameter. Leaves ovate or orbicular, rarely much above 1 in. long. Tasmanian species 66. *E. vernicosa*.

(See also the sessile-flowered variety of 86. *E. viminalis*.)

Flowers rather large. Operculum globular, broader than the calyx-tube. Fruit turbinate, $\frac{3}{4}$ in. long, the broad rim flat, the valves protruding and erect. Western species . . . 64. *E. gomphocephala*.

Flowers large. Fruit hemispherical, $\frac{3}{4}$ to 1 in. diameter. Western species.

Leaves acuminate. Fruit with prominent thick incurved capsule-valves . . . 67. *E. myrsinifolia*.

Leaves obtuse, often opposite. Fruit flat or concave at the top, the valves not prominent . . . 68. *E. Preissiana*.

(See also the subseries *Eudesmiæ*, which, when the calyx-teeth become obliterated, resemble the *Robustæ* in their inflorescence and fruit, but have generally more or less opposite leaves and broad short opercula.)

SUBSERIES IV. **Cornutæ**.—Peduncles axillary or lateral, several- often many-flowered, flattened (except in *E. cornuta*). Flowers sessile or shortly pedicellate. Operculum long, smooth, and not thick. Stamens erect or flexuose in the bud, but not inflected. Fruit turbinate, urceolate or obovoid, the capsule not much sunk. Leaves thick, with irregular oblique veins often inconspicuous.

The habit of this subseries is that of the *Robustæ*, from which it is readily distinguished by the stamens not inflected in the bud. The species are all Western.

Calyx-tube and fruit more or less immersed in the large thick receptacle. Capsule valves exerted, acuminate, connivent . . . 69. *E. Lehmanni*.

Flowers and fruit sessile. Leaves ovate-lanceolate or lanceolate. Peduncles scarcely flattened. Ovary flat-topped, the style slightly thickened. Capsule slightly convex before opening; valves, when open, very prominent, with long points, often connivent . . . 70. *E. cornuta*.

Flowers and fruit sessile. Leaves narrow-lanceolate. Peduncles very short broad and flat. Ovary and capsule with a conical top, surrounded by a free annular disk. Valves, when open, prominent and acuminate . . . 71. *E. annulata*.

Flowers and fruit nearly sessile. Leaves mostly orbicular. Peduncles very flat, broad and often long. Ovary and capsule with a conical top, rim of the fruit scarcely prominent. Valves acuminate, usually prominent . . . 72. *E. platypus*.

Flowers and fruit nearly sessile. Leaves of *E. cornuta*. Peduncles flattened. Ovary flat-topped, the style not thickened. Fruit truncate, the valves not acuminate nor protruding . . . 73. *E. macrandra*.

Flowers and fruit distinctly pedicellate. Leaves of *E. cornuta*. Peduncles flattened. Ovary and capsule convex or conical at the top. Fruit urceolate; valves acuminate, protruding when open . . . 74. *E. occidentalis*.

Flowers and fruit shortly pedicellate. Leaves narrow. Peduncles flat. Ovary flat-topped, the style not thickened. Fruit obovoid, much contracted at the orifice. Points of the valves often protruding . . . 75. *E. spathulata*.

(See also 65. *E. grossa*, which has the operculum of the *Cornutæ*, but the stamens distinctly inflected in the bud.)

(In 16. *E. marginata*, the stamens are not inflected, but the anthers are very different. In 89. *E. tereticornis*, 78. *E. Oldfieldii*, and perhaps some others of the *Ersertæ*, the stamens are only slightly inflected at the ends.)

SUBSERIES V. **Exsertæ**.—Peduncles axillary or lateral, or rarely also the upper ones in a short terminal corymb, terete or scarcely flattened, each with several, often many flowers, usually pedunculate. Fruit globose or depressed, usually more or less contracted at the orifice, the rim convex or prominent, rarely flat, the capsule-valves protruding beyond it.

The general shape of the fruit, with its peculiar broad prominent rim or disk, is like that of 12. *E. capitellata*, and its allies among *Renanthera*, and is not found in other groups, although 103. *E. oleosa* and its allies, which I have placed among *Inclusæ*, often show some approach to it, and, on the other hand, *E. viminalis*, *dealbata*, and *cinerea*, are frequently exceptional in the present subseries by the rim, and more rarely the valves remaining quite flat.

Leaves opposite, cordate-ovate. Operculum conical, shorter than the calyx-tube. Eastern species 84. *E. cinerea*.

(See also 47. *E. pulverulenta*, among the *Subsessiles*, differing from *E. cinerea* in its larger less pedicellate flowers, always 3, and in the fruit.)

Leaves alternate, from very broadly ovate to ovate-lanceolate, usually obtuse, whitish, veined. Operculum obtuse, longer than the calyx-tube. Eastern species 85. *E. dealbata*.

(See also the tropical 91. *E. alba* among the *Subexsertæ*.)

Leaves orbicular ovate or lanceolate, very thick, the veins (fine and parallel or irregular and oblique) scarcely conspicuous.

Calyx not 3 lines diameter. Operculum short. Tropical species . 76. *E. pallidifolia*.

Calyx 4 to 6 lines diameter or more. Operculum as long as or longer than the calyx-tube.

Disk forming a raised ring or prominent rim round the somewhat depressed capsule.

Calyx angular. Tropical species 77. *E. pachyphylla*.

Calyx terete. Stamens dark, scarcely inflected. Western species 78. *E. Oldfieldii*.

Disk concave in the flower, very convex in the fruit, the capsule not depressed. Western species.

Ovary slightly convex, shorter than the calyx 79. *E. pachyloma*.

Ovary conical in the centre, rather longer than the calyx-tube. Leaves ovate-oblong or lanceolate 80. *E. Drummondii*.

Ovary with a large conical summit, entirely exserted. Leaves orbicular 81. *E. orbifolia*.

Leaves long-lanceolate or linear, not very thick, the oblique veins fine, but often conspicuous. Calyx rarely above 3 lines diameter.

Leaf-veins inconspicuous. Western species.

Leaves narrow-linear. Umbels 2- to 4-flowered. Operculum obtuse 82. *E. angustissima*.

Leaves linear-lanceolate. Umbels with many small flowers, on slender pedicels. Operculum conical 83. *E. leptopoda*.

Leaf-veins usually conspicuous. Eastern species, except *E. exserta*.

Pedicels short. Operculum obtuse or conical, not much longer than the calyx-tube. Fruit-rim not very convex, and often flat 86. *E. viminalis*.

Pedicels slender. Operculum more or less rostrate. Fruit-rim very convex or conical.

Eastern or tropical species, with a smooth white deciduous bark 87. *E. rostrata*.

Western or tropical species, with a dark rough bark, persistent or falling off in fragments 88. *E. exserta*.

Operculum 2 to 4 times as long as the calyx-tube, obtusely conical. Fruit-rim very convex or conical 89. *E. tereticornis*.

SUBSERIES VI. Subexsertæ.—*Peduncles axillary or lateral, or also the upper ones more or less paniculate, terete or flattened, several-flowered. Calyx-tube broad at the orifice. Fruit turbinate, the orifice not contracted, the capsule level or slightly sunk, the valves often protruding when open.*

This subseries differs from the *Exsertæ* and the *Inclusæ*, chiefly in the fruit.

Leaves broad, with very diverging veins and distinctly reticulate.

Tropical or subtropical species.

Flowers nearly sessile or on short thick pedicels. Operculum hemispherical, short 90. *E. platyphylla*.

Flowers small, distinctly pedicellate. Operculum conical 91. *E. alba*.

Leaves mostly lanceolate, rather thick, the veins fine or obscure, oblique and irregular. Operculum conical. Eastern species 92. *E. Stuartiana*.

Leaves thick and shining, the veins inconspicuous. Operculum globular, broader than the calyx-tube. Peduncle flattened. Western species 64. *E. gomphocephala*.

Leaves long-lanceolate, with numerous, rather regular oblique veins, and more or less reticulate. Fruit rather large.

Fruit with a broad flat dilated rim, the valves protruding. Tropical species 93. *E. patellaris*.

Fruit with a narrow rim, the capsule somewhat sunk, the points of the valves protruding. Western species 94. *E. rudis*.

(See also 38. *E. siderophloia*, which has nearly the fruit of the *Subersertæ*, but with very different anthers; and some varieties of 86. *E. viminialis*, which, when the fruit-rim is less prominent, come near the *Subersertæ*.)

Leaves ovate-lanceolate to lanceolate, with very numerous, fine, close, parallel veins.

Operculum conical, about as long as the calyx-tube. Leaves usually narrow. Flowers nearly sessile 95. *E. saligna*.

Operculum much longer than the calyx-tube. Leaves usually broad-lanceolate. Flowers distinctly pedicellate.

Calyx-tube under $\frac{1}{2}$ in. diameter 96. *E. resinifera*.

Calyx-tube 6-8 lines diameter 97. *E. pellita*.

SUBSERIES VII. *Inclusæ*.—Umbels usually several-flowered, axillary or lateral and solitary or several together, in lateral clusters or very short panicles, and then sometimes reduced to one or two flowers each, the peduncles terete or rarely flattened. Fruit more or less contracted at the orifice, the capsule sunk, the valves not protruding, excepting their points when acuminate by the split base of the style.

Umbels solitary and simple, axillary or the upper ones almost paniculate.

Fruit hard, depressed-globose or subglobose, the rim usually flat and the capsule often scarcely sunk; valves often acuminate by the split base of the style. Leaves alternate, the veins scarcely conspicuous. Western species, the *E. oleosa* also in more eastern deserts.

Operculum hemispherical, not so long as the calyx-tube.

Calyx much dilated above the ovary. Umbels few-flowered 99. *E. patens*.

Operculum longer than the calyx-tube, conical or acuminate.

Peduncles much flattened.

Flowers sessile. Calyx broad at the base or shortly tapering, smooth as well as the operculum 100. *E. concolor*.

Calyx tapering into a short pedicel, deeply furrowed as well as the operculum 101. *E. goniantha*.

Peduncles terete or nearly so. Flowers pedicellate.

Calyx depressed-globose, deeply furrowed. Flowers small. Operculum very long 102. *E. falcata*.

Calyx subglobose or obovoid, smooth or slightly furrowed.

Stamens inflexed, flexuose. Capsule slightly sunk 103. *E. oleosa*.

Stamens slender, inflexed with an acute angle. Capsule much sunk. Umbels usually reflexed 104. *E. decurva*.

Fruit pear-shaped, the points of the valves sometimes protruding. Leaves alternate, the veins scarcely conspicuous. Peduncles with 3 almost sessile flowers. Tasmanian species . . . 98. *E. Gunnii*.

Fruit obovoid or ovoid-oblong, the rim thin, the capsule deeply sunk.

Leaves mostly opposite.

Leaves cordate ovate. Branches scabrous. Operculum short, obtuse. Tropical species . . . 106. *E. aspera*.

Leaves mostly lanceolate. Operculum beaked. Umbels recurved. Western species . . . 105. *E. doraterylon*.

Leaves alternate.

Operculum at least twice as long as the calyx-tube. Western species . . . 114. *E. redunca*.

Operculum hemispherical or flat.

Peduncles with 3 almost sessile flowers. Tasmanian species . . . 98. *E. Gunnii*.

Peduncles with several pedicellate flowers.

Calyx $\frac{1}{2}$ in. long, narrow. Stamens long and red. Fruit long, with a distinct neck. Tropical species . . . 110. *E. phœnicea*.

Calyx 3 to 4 lines long. Leaf-veins parallel, fine, and nearly transverse. Western species . . . 111. *E. diversicolor*.

(See also the large-flowered varieties of 62. *E. dumosa*.)

Calyx 2 to 3 lines long. Western species.

Leaves (often above 4 in. long) with irregular, distant, usually prominent veins, the intramarginal one distant from the edge. . . . 112. *E. lorophleba*.

Leaves (usually under 3 in. and often narrow) with fine parallel veins, scarcely conspicuous, the intramarginal one near the edge . . . 113. *E. fœcunda*.

(See also 135. *E. tetradonta*, and 134. *E. odontocarpa*, amongst *Eudesmieæ*, in which the calyx-teeth occasionally disappear.)

Umbels several together, on very short lateral peduncles, forming short panicles or clusters; operculum very short and flat. Tropical or subtropical species.

Leaves mostly opposite, large, broad, thick, and rigid. Umbels irregular, each often reduced to 1 or 2 flowers. Calyx 4 lines diameter or more . . . 107. *E. grandifolia*.

Leaves from broadly cordate and opposite to broadly lanceolate, irregularly and conspicuously veined. Umbels many-flowered. Pedicels long. Calyx under 3 lines diameter . . . 108. *E. clavigera*.

Leaves all narrow-lanceolate, with more regular veins. Pedicels shorter. Calyx small (the whole inflorescence sometimes reduced to an apparently simple cluster) . . . 109. *E. tessellaris*.

(See also 43. *E. crebra*, and its allies amongst *Micrantheræ*, which have frequently a compound inflorescence, and a similar fruit, but a conical operculum and very small anthers.)

SUBSERIES VIII. Corymbosæ.—Flowers usually large, (the umbels or very rarely heads) all in a terminal corymbose panicle, or rarely a few of the lower ones axillary. Fruit often large, more or less urceolate, the capsule deeply sunk. Seeds usually large, flat, with acute edges, often more or less expanded in a variously-shaped wing.

Leaves opposite, connate, large . . . 115. *E. perfoliata*.
Leaves opposite, sessile, cordate.

Branchlets rusty-pubescent. Leaves large. Fruit above 1 in. long . . . 116. *E. ferruginea*.

Branchlets and calyx bristly. Leaves small. Fruit $\frac{1}{2}$ to $\frac{3}{4}$ in. long . . . 117. *E. setosa*.

Leaves alternate, peltately attached to the petiole above the base.

Leaves oblong or lanceolate 118. *E. melissiodora*.

Leaves broadly ovate 119. *E. peltata*.

Leaves alternate, petiolate, broadly ovate. Fruit globose, truncate or with a very short neck 120. *E. latifolia*.

Leaves ovate-lanceolate or lanceolate, acuminate, with numerous

• fine, close, almost transverse veins.

Tropical species. Fruit 1 to 1½ in. long, prominently ribbed . 121. *E. ptychocarpa*.

Western species. Fruit 1½ to 2 in. long, not ribbed.

Seeds large, not winged 122. *E. calophylla*.

Seeds (very irregularly) winged 123. *E. ficifolia*.

Eastern species. Fruit ½ to ¾ in. long, not ribbed.

Seeds more or less winged 124. *E. corymbosa*.

Seeds not winged 125. *E. citriodora*.

Leaves long-lanceolate, thick and smooth, the very fine close almost transverse veins scarcely conspicuous.

Fruit oblong. Operculum depressed, continuous with the calyx till the moment of separation 126. *E. terminalis*.

Fruit globular or ovoid, contracted at the mouth. Operculum of *E. terminalis*. Flowers large 128. *E. pyrophora*.

Fruit nearly globular, with a short neck. Operculum depressed (Flowers smaller than in the other species?) 127. *E. dichromophloia*.

Leaves narrow-lanceolate, rigid, with more oblique veins. Operculum double.

Flowers pedicellate in 3-flowered umbels 129. *E. maculata*.

Flowers sessile, in heads 130. *E. eximia*.

SUBSERIES IX. **Eudesmieæ.**—*Leaves, including the petiolate ones, mostly opposite or nearly so. Peduncles usually 3-flowered. Calyx with 4 minute teeth, more or less conspicuous below the globular hemispherical or flattened operculum. Stamens sometimes in 4 clusters.*

The habit of the subseries is generally that of the *Robustæ* or of the *Incluse*.

(The calyx-teeth are sometimes scarcely conspicuous in *E. tetragona*, and occasionally flowering branches with alternate leaves may be observed in most species.)

Stamens more or less distinctly in 4 clusters, usually very shortly united at the base (or inserted on 4 lobes of the disk).

Western species.

Flowers very large. Operculum red, very broad, depressed, with crossed raised ribs. Fruit very large, hemispherical, with a broad raised hat-like disk 131. *E. erythrocorys*.

Flowers not very large. Operculum hemispherical, smooth. peduncles flattened. Fruit ovoid or globular; rim narrow; capsule sunk. Leaves usually broad 132. *E. tetragona*.

Flowers small. Operculum hemispherical, smooth. Peduncles short, not flattened. Fruit ovoid or oblong; rim narrow; capsule sunk. Leaves mostly narrow 133. *E. eudesmioides*.

Stamens very numerous, not separated into clusters, the disk not lobed. Tropical species. Fruit oblong-cylindrical; rim narrow; capsule sunk.

Fruit above ½ in. long. Leaves long-lanceolate, the veins usually conspicuous. Flowers rather large 135. *E. tetradonta*.

Fruit under ½ in. long. Leaves short lanceolate, the veins scarcely prominent. Flowers small 134. *E. odontocarpa*.

(The calyx-teeth are also sometimes distinguishable in 40. *E. globulus*, with large nearly globular sessile and very rugose buds, and in 57. *E. tetraptera*, with angular buds 1½ in. long.)

The following enumerated or more or less described species, all unknown to me, are all most probably synonyms to some of those here described:—

E. ovata, Labill. Pl. Nov. Holl. ii. 13. t. 153, from West Australia, does not occur in the distributed sets of Labillardière's plants which I have seen. From the figure, it appears probable that the specimen represented was from an adventitious branch, with much broader leaves than the ordinary flowering ones. It is very likely, therefore, a form of some one of the described Western species, possibly *E. brachypoda*.

E. multiflora, Poir. Dict. Suppl. ii. 594, appears to me very probably to be the same as *E. resinifera*.

E. oblonga, DC. Prod. iii. 217, is described from Sieber's specimens, n. 583, which are in young bud and fruit with a few leaves, and in that state may equally well be referred to *E. piperita*, *E. hæmastoma* or others.

E. pallens, DC. Prod. iii. 219, is described from Sieber's specimens, n. 606, which I have not seen. The short diagnosis agrees in many respects both with *E. albens* and *E. dealbata*, and especially with the latter, but the operculum described is rather different from either.

E. curvula, Sieb. in Spreng. Syst. Cur. Post. 195, is described from specimens of Sieber's without reference to his number. I have not met with the name in the Sieberian collections I have seen, and the short diagnosis is equally applicable to several species.

E. triantha, Link. Enum. Hort. Berol. ii. 30, *E. salicifolia* and *E. racemosa*, Cav. Ic. iv. 24, *E. linearis* and *E. procera*, Dehnh. in Walp. Rep. ii. 164, although evidently seen by the authors in bud or in flower as well as in leaf, are far too imperfectly described to render their identification possible.

The following, which have been shortly described from young plants in leaf only, could most probably not be identified if we had the original specimens before us, and should be entirely discarded:—

E. microphylla, Willd. Enum. Hort. Berol. 515, probably not an *Eucalyptus* at all.

E. reticulata, *media*, *mucronata*, *elongata*, *myrtifolia*, *angustifolia*, *stenophylla*, and *purpurascens* (*oppositifolia*, Desf.), Link. Enum. Hort. Berol. ii. 29 to 31.

E. hypericifolia, *umbellata*, and *connata*, Dum. Cours., quoted by DC. Prod. iii. 221, 222.

E. glaucophylla, *androsemæfolia*, and *rigida*, Hoffm. Verz. 1826, quoted by DC. Prod. iii. 216, 218, 221.

E. perfoliata, *discolor*, *glandulosa*, *rubricaulis*, *pulchella*, and *populifolia*, Desf. Cat. Hort. Par. 1829, 408.

E. tuberculata, Parm. in DC. Prod. iii. 221, and *E. glauca*, DC. l. c.

The following are names only entered in Steudel's Nomenclator from garden catalogues:—*E. alata*, *albicaulis*, *undulata*, and *verrucosa*, Loud.; *E. cotinifolia*, *orbicularis*, and *phillyroides*, Lodd.

E. serratifolia, Desf. in Steud. Nomencl., is a mistake of Steudel's in copying *Eucalyptus* for *Cratægus*.

SERIES I. RENANTHERÆ.—Stamens all perfect or very rarely some of the outer ones with abortive anthers; anthers reniform or broad and flat, the cells divergent or at length divaricate, contiguous and usually confluent at the apex.

1. ***E. stellulata***, Sieb. in DC. Prod. iii. 217. A small tree, the furrowed bark coming off at length in layers (*F. Mueller*), rugose below, very smooth above and of a lead colour (*Woolfs*). Leaves elliptical, lanceolate or the lower ones ovate, rarely much above 3 in. long, usually straight or nearly so, acuminate and much narrowed towards the base, the veins very oblique and anastomosing, a few of the principal ones prominent, starting from near the base, and almost parallel to the midrib as in *E. coriacea*. Flowers very small and numerous, nearly sessile on very short lateral or axillary peduncles, the buds very narrow. Calyx-tube narrow-turbinate, about $1\frac{1}{2}$ lines long. Operculum conical, about as long as the calyx-tube. Stamens not above 2 lines long, all perfect, inflexed in the bud; anthers small,

reniform, the cells divergent and confluent at the apex. Ovary flat-topped. Fruit globular-truncate or pear-shaped, rarely exceeding 2 lines in diameter, often contracted at the orifice, the rim flat or slightly concave, the capsule slightly or scarcely sunk.—DC. Mem. Myrt. t. 6; F. Muell. Fragm. ii. 45.

N. S. Wales. Port Jackson to the Blue Mountains, *Sieber*, n. 478; *Fraser*, and others; Goulburn plains, Argyle county, "White Gum," *A. Cunningham*; Mudgee, *Woolfs*; New England, "Olive Green Gum," *Leichhardt*; Low Flats, Berrima, "Lead Gum," *Woolfs*.

Victoria. Stony hills towards Lake Omeo, subalpine ranges near Mount Barkley, ranges on the Macalister river and on the Upper Genoa river, *F. Mueller*.

Var. *angustifolia*. Leaves narrow, very thick and smooth, scarcely showing the venation.—*E. microphylla*, *A. Cunn.* in Field, N. S. Wales, 350 (partly); *E. Cunninghamii*, *G. Don*, Gen. Syst. ii. 821 (partly); Blue Mountains, *A. Cunningham* (partly). Some specimens belong to this species and some to *E. stricta*, both having a similar foliage when the leaves are too narrow and thick to show the venation. The shape of the buds, however, distinguishes *E. stellulata* from all others with thick linear apparently veinless leaves.

2. ***E. coriacea*, A. Cunn.; Schau. in Walp. Rep. ii. 925.** A tree attaining sometimes a considerable height, the exterior bark deciduous, the inner smooth and whitish (*Herb. F. Mueller*). Leaves mostly ovate-lanceolate or lanceolate, acuminate and falcate, from 3 or 4 in. to twice that length, very thick, smooth and shining, the veins not numerous, very oblique, a few starting from below the middle and almost parallel to the midrib giving the leaf a several-nerved appearance. Peduncles axillary or lateral, rather thick, terete or slightly compressed, each with about 5 to 10 flowers, the buds clavate and tapering into a short thick pedicel. Calyx-tube very open, nearly 3 lines diameter. Operculum hemispherical, obtuse or with a small point or shortly conical, shorter than the calyx-tube. Stamens 2 to 3 lines long, all perfect or perhaps occasionally a few of the outer ones with abortive anthers; anthers small, reniform, with short divergent cells confluent at the apex. Ovary flat-topped. Fruits often nearly sessile, smooth, pear-shaped, truncate, 3 or rarely nearly 4 lines diameter, more or less contracted at the orifice, as long as broad or rather longer and slightly tapering at the base, the rim flat or concave, the capsule somewhat sunk or nearly on a level with the border, the valves horizontal or scarcely protruding.—Hook. f. Fl. Tasm. i. 136; F. Muell. Fragm. ii. 52; *E. pauciflora*, *Sieb.* in Spreng. Syst. Cur. Post. 195; *E. phlebophylla*, *F. Muell.*; *Miq.* in Ned. Kruidk. Arch. iv. 140.

N. S. Wales. Port Jackson to the Blue Mountains, *Sieber*, n. 470, and others; Argyle county, *A. Cunningham*; Berrima, "White Gum," *Woolfs*; New England, "White Gum," *Leichhardt*.

Victoria. Mountain or marshy forests, ascending in the Alps to 4000 or 5000 ft., where it forms rather extensive woods; "Mountain White Gum" and "Flooded Gum," *F. Mueller*; Creswick, "Peppermint," *Whan*.

Tasmania. Abundant in most parts of the colony, "Weeping Gum," *J. D. Hooker*.

Var. *alpina*, *F. Muell.* Leaves short and nearly straight. Flowers rather smaller and peduncles shorter.—Mountains on the Macalister river, *F. Mueller*.

E. submultiplinervis, *Miq.* in Ned. Kruidk. Arch. iv. 138, or *E. sylvicultrix*, *F. Muell.* in *Herb. Sond.*, is a narrow straight-leaved variety with the flowers of the ordinary size. In a specimen from the Blue Mountains in *Herb. F. Muell.* the leaves are long and almost linear-lanceolate, but very thick with the longitudinal veins of *E. coriacea*, of which it has also the flowers.

3. *E. virgata*, Sieb. in DC. Prod. iii. 217. A tree of considerable size with a furrowed persistent fibrous bark (*Oldfield*), apparently very near to *E. coriacea* and *E. obliqua*, and perhaps a variety of the former. Leaves lanceolate, usually narrow falcate and acuminate, 4 to 6 in. long or sometimes longer, thick and shining with the veins more oblique than in *E. obliqua*, less so than in *E. coriacea* and often very indistinct. Peduncles more or less flattened, with several flowers, on rather long pedicels. Calyx-tube nearly hemispherical, about 2 lines diameter. Operculum hemispherical and short, or more frequently conical and as long as or rather longer than the calyx-tube. Stamens about 3 lines long, inflected in the bud, the outer filaments with small abortive anthers or rarely quite anantherous, the perfect anthers small, reniform, with divergent confluent cells. Fruit narrow pear-shaped, 4 to 6 lines long, scarcely contracted at the orifice, the rim broad and at first concave, but generally flat when quite ripe, the capsule somewhat sunk.

N. S. Wales. Port Jackson or Blue Mountains, *Sieber*, n. 467; Twofold Bay, "Mountain Ash," *Oldfield*, *F. Mueller*; Berrima, "Mountain Ash," *Woolfs*.

Victoria. Sealers' Cove, "Gum-top," *Walters*.

S. Australia. A shrub of 10 to 15 ft. with a white and grey bark, in the stunted Stringy-bark forests 15 miles N.W. of Mount Gambier, (*Wilhelmi*?) in *Herb. F. Mueller*.

I have described this species chiefly from *Oldfield*'s, *Woolfs*'s, and *F. Mueller*'s specimens. *Sieber*'s appear to be the same, but they are only in young bud and therefore uncertain. It differs from both *E. coriacea* and *E. obliqua* in the outer stamens bearing only abortive anthers, and in that respect approaches *E. hamastoma*, from which it differs as well in foliage and in fruit as in these imperfect stamens being much fewer and rarely if ever quite without anthers.

4. *E. amygdalina*, *Labill. Pl. Nov. Holl.* ii. 14. t. 154. A tree, usually small or moderate-sized but sometimes attaining a considerable height, the bark sometimes described as persistent and fibrous, sometimes as more or less deciduous in large flakes, the branches slender. Leaves from linear to broadly lanceolate, straight or falcate, mostly acuminate and 2 to 4 in. long, when narrow rather thin, when broad thicker, the veins few and oblique but often inconspicuous, the intra-marginal one at a distance from the edge or rarely near to it. Peduncles axillary or lateral, terete or nearly so, with about 4 to 8 rather small flowers. Buds clavate, often glandular and rough. Calyx-tube turbinate, about 2 lines diameter, tapering into a pedicel often as long as itself. Operculum hemispherical, shorter than the calyx-tube, very obtuse or slightly umbonate. Stamens under 2 lines long, inflected in the bud, all perfect; anthers small, with diverging more or less confluent cells. Ovary flat-topped. Fruit subglobose-truncate, usually under 3 lines diameter, but larger in some varieties, slightly contracted at the orifice, the rim flat or slightly concave and rather broad, the capsule not at all or only slightly sunk, the valves flat or slightly protruding.—DC. Prod. iii. 219; Bot. Mag. t. 3260; Hook. f. Fl. Tasm. i. 135; *F. Muell. Fragm.* ii. 53; *E. longifolia*, *Lindl. Bot. Reg.* t. 947; *E. Lindleyana*, DC. Prod. iii. 219; *E. tenuiramis*, *Miq. in Ned. Kruidk. Arch.* iv. 128.

N. S. Wales. Port Jackson to the Blue Mountains, *R. Brown*, and others; Argyle County, *A. Cunningham*; "N. S. Wales Stringy-bark," *Backhouse*, and others; and southward to Twofold Bay, *F. Mueller*.

Victoria. Low sterile hills from near Ballarat to Gipps' Land, "Box" and "Peppermint-tree," *F. Mueller*; Creswick, "Red Gum," *Whan*.

Tasmania, R. Brown. Abundant throughout the island, "Peppermint-tree," J. D. Hooker, and others.

E. ligustrina, DC. Prod. iii. 219, described from Sieber's specimens n. 617, which I have not seen, is probably this species.

Var. *radiata*. Leaves rather broader, 3 to 4 in. long. Flowers usually more numerous, sometimes near 20 in the umbels. Fruit almost pear-shaped.—*E. radiata*, Sieb. in DC. Prod. iii. 218; DC. Mem. Myrt. t. 7.—Chiefly in N. S. Wales, Sieber, n. 475, and others; Beut's Basin and Nepean rivers, "White Gum," with a smooth bark, Woolls; South of Argyle, A. Cunningham, but also in Victoria and Tasmania passing into the ordinary form.

Var. *nitida*. Leaves broader and more rigid. Peduncles and pedicels shorter. Flowers rather longer.—*E. ambigua*, DC. Prod. iii. 219? from the diagnosis taken from Labillardière's specimen. *E. nitida*, Hook. f. Fl. Tasm. i. 137. t. 29.—In the dried specimens this variety appears to pass into the variety *elata* of *E. Risdoni*.

Var. ? *hypericifolia*. Leaves of the fruiting branches all opposite, oblong-lanceolate, rounded or cordate at the base, and sessile or nearly so.—Risdon Cove, R. Brown.—*E. hypericifolia*, R. Br. Herb.—The specimens are large and good but in fruit only. To this form may belong also some of the garden plants described from the foliage only under the same name.

5. **E. Risdoni**, Hook. f. in Hook. Lond. Journ. vi. 477 and Fl. Tasm. i. 133. t. 24. A small or moderate-sized tree, rarely attaining 50 to 60 ft., the bark smooth, coming off in irregular patches, the branches usually pendulous (*Oldfield*), dark brown or ashy-white or a mixture of both (*R. Brown*), the flowering shoots often glaucous or nearly white. Leaves sometimes all, even on the flowering branches, opposite ovate-cordate and more or less connate, or sometimes those of the flowering branches alternate, broadly lanceolate and falcate, rather thick with oblique veins scarcely conspicuous, the intramarginal one at a distance from the edge. Peduncles axillary or lateral, terete or angular, bearing each an umbel of 4 to 8 or even more. Flowers larger than those of *E. amygdalina*. Buds obovoid-clavate. Calyx-tube very open, attaining 3 lines diameter. Operculum hemispherical, obtuse, shorter than the calyx-tube. Stamens nearly 3 lines long, inflected in the bud, all perfect; anthers with divergent confluent cells. Ovary flat-topped. Fruit subglobose-truncate, attaining 4 lines diameter, somewhat contracted at the orifice, the rim rather broad, flat, or slightly convex, the capsule not sunk, the valves flat or slightly protruding.

Tasmania. In the southern parts of the island rather abundant, "Risdon" or "Drooping Gum," R. Brown, J. D. Hooker, Oldfield.

Var. *elata*. A beautiful tree of the largest size, the bark of the trunk grey and deciduous, that of the extremities of the branches purplish-red or reddish-brown (*Gunn*). Leaves broadly lanceolate-falcate, 2 to 4 in. long, rather thick, sometimes almost as in *E. obliqua*. Flowers of *E. Risdoni*. Fruit pear-shaped, 4 lines diameter, with a broad convex rim.—Lake St. Clair, *Gunn*. This variety in the dried specimens appears to connect *E. amygdalina* with *E. obliqua*, but without doubt belongs to *E. Risdoni* as observed by Oldfield, although the dried specimens were included by J. D. Hooker among the varieties of *E. radiata*, Sieb., now united to *E. amygdalina*.

F. Mueller unites *E. Risdoni* altogether with *E. amygdalina*. J. D. Hooker and Oldfield, both of them from observations made on the spot, have assured me that the two are quite distinct, in habit as well as in the bark. The sessile opposite leaves occupy frequently the flowering branches of *E. Risdoni*, and are only on the saplings and adventitious flowerless branches of *E. amygdalina*; they are, moreover, broad, frequently connate, and usually glaucous or nearly white in the former, always as far as known narrow-ovate or oblong-lanceolate in *E. amygdalina*. When the leaves are alternate they appear to be broader in *E. Risdoni* than in *E. amygdalina*, the pedicels thicker and more angular, the flowers and fruits larger, differences, however, of degree only, to which our dried specimens do not admit of our fixing any precise limits, and in that state it is sometimes scarcely possible to decide to which species they should be referred.

6. ***E. coccifera***, Hook. f. in Hook. Lond. Journ. vi. 477, and Fl. Tasm. i. 133. t. 25. A small tree generally very glaucous. Leaves lanceolate, acuminate or obtuse, mostly 2 to 3 in. long, thick and shining, the veins oblique, not numerous nor very conspicuous. Peduncles axillary or lateral, short, thick and much flattened upwards, each with 3 to 6 flowers, sessile or nearly so. Calyx-tube narrow-turbinate, tapering at the base, prominently angled, fully 3 lines long and not above 2 diameter. Operculum exceedingly short, broad, flat or depressed and rugose. Stamens about 3 lines long, inflected in the bud; anthers reniform with diverging or divaricate cells, confluent at the apex. Ovary short, flat-topped. Fruit obovoid-truncate, scarcely contracted at the orifice and often losing the angles of the calyx, 4 to 5 or even 6 lines diameter, the rim flat and rather broad, the capsule scarcely depressed, with short valves.—Bot. Mag. t. 4637; *E. daphnoides*, Miq. in Ned. Kruidk. Arch. iv. 133.

Tasmania. Summits of the mountains at an elevation of 3000 to 4000 ft., J. D. Hooker.

Var. *parviflora*. Flowers much smaller, the peduncles exceedingly short.—Mount Fatigue, Gunn.

The species has much the aspect of some thick-leaved forms of *E. amygdalina*, but is readily known by the depressed operculum and longer calyx.

7. ***E. obliqua***, Lher. Sert. Angl. 18. t. 20. An immense tree attaining from 150 to 250 ft., although flowering already when young and small, with a very tenacious rugged fibrous bark. Leaves in the usual form mostly ovate-lanceolate, falcate and very oblique at the base, more or less acuminate, 4 to 6 in. long, thick with very oblique distant anatomosing veins, the intramarginal one at some distance from the edge. Peduncles axillary or lateral, terete or slightly compressed, bearing each an umbel of about 4 to 8 flowers. Buds shortly clavate. Calyx-tube fully 3 lines diameter, rather short and tapering into a pedicel usually as long or longer. Operculum hemispherical or flattened, very obtuse, shorter than the calyx-tube. Stamens fully 3 lines long, all perfect; anther-cells diverging or at length divaricate and confluent at the apex. Ovary flat-topped. Fruit more or less pear-shaped, truncate at the top, 3 to 5 lines diameter, slightly contracted at the orifice, the rim rather broad and concave, the capsule more or less sunk.—DC. Prod. iii. 219; F. Muell. Fragn. ii. 172; *E. gigantea*, Hook. f. in Hook. Lond. Journ. vi. 479; Fl. Tasm. i. 136. t. 28; F. Muell. Fragn. ii. 44, 171; *E. falcifolia*, Miq. in Ned. Kruidk. Arch. iv. 136, as to the S. Australian specimens; *E. nervosa*, F. Muell.; Miq. in Ned. Kruidk. Arch. iv. 139.

N. S. Wales. Probably in the southern districts adjoining Gipps' Land, but I have only seen specimens doubtfully referable to this species.

Victoria. Constitutes vast "Stringy-bark" forests, covering many hilly parts of the country and extending to the Grampians, F. Mueller, and others.

Tasmania. Abundant in most parts of the island, forming a great part of the hill-forests and ascending to 4000 ft., "Stringy-bark," J. D. Hooker.

S. Australia. Forming "Stringy-bark" forests at the mouth of the Glenelg, on Mount Gambier, etc., F. Mueller, Robertson, and others.

E. fabrorum, Schlecht. Linnaea, xx. 656, is referred by F. Mueller to *E. obliqua*, owing to the author's stating it to be the "Stringy-bark" of the colonists, and very possibly some of Behr's specimens may be of that species, but the only authentic one I have seen in a perfect state is evidently *E. viminalis*. The "Messmate," from Dandenong and other parts of

Victoria is, according to F. Mueller's specimens, also referable to *E. obliqua*, although it has the leaves rather thinner with the veins more conspicuous.

Decaisne, in Herb. Tim. Descr. 126, enumerates *E. obliqua* among Timor plants, a very unlikely station, and Blume may be right in considering the Timor species (which I have not seen) as distinct (*E. Decaisneana*, Blume, Mus. Bot. 83), although in his diagnosis, evidently taken from Decaisne's, there is no character incompatible with the true *E. obliqua*.

E. heterophylla, Miq. in Ned. Kruidd. Arch. iv. 141, from Tasmania, described from barren leafy branches, appears to be one of the forms assumed by the saplings or by the adventitious shoots of *E. obliqua*.

8. ***E. dives***, Schau. in Walp. Rep. ii. 926. A small tree of 12 ft. Leaves sessile, opposite, cordate or ovate, acute or acuminate, rather large, on one branch the upper ones tending to become alternate and oblique. Peduncles mostly on the stem below the leaves, bearing each a dense umbel of 8 to 12 or even more flowers. Buds clavate. Calyx-tube short and broad, about 2 lines diameter, tapering into a rather thick pedicel longer than the calyx. Operculum short obtuse and hemispherical. Anther-cells divergent and confluent at the apex. Fruit unknown.

N. S. Wales. Forest land north of Bathurst, A. Cunningham. Probably an opposite-leaved state of some species very nearly allied to or even identical with *E. obliqua*, of which it has the flowers. I have, however, seen no specimen of the true *E. obliqua* from so far north.

9. ***E. obtusiflora***, DC. Prod. iii. 220, and Mem. Myrt. t. 10. Leaves mostly straight, oblong elliptical or almost lanceolate, acuminate, often all under 3 in. long, but in some luxuriant specimens more falcate, acuminate and attaining 5 in., very thick and rigid, the veins oblique and parallel, but not close, the intramarginal one at a distance from the edge. Peduncles lateral or axillary, somewhat compressed, rigid, with an umbel of 4 to 8 rather large flowers. Buds clavate. Pedicels much thickened upwards. Calyx-tube short and broad, fully 3 lines diameter. Operculum broadly hemispherical, obtuse or umbonate, thick, shorter than the calyx-tube. Stamens 2 to 3 lines long, all perfect; anthers reniform, with divergent cells usually confluent at the apex. Fruit very hard and woody, ovoid-truncate, above $\frac{1}{2}$ in. long, the orifice scarcely contracted, the rim rather broad and concave, the capsule depressed.—*E. rigida*, Sieb. Pl. Exs.

N. S. Wales. Port Jackson, Sieber, n. 473; F. Mueller; Bargo Brush, Backhouse.—Allied to *E. obliqua*, but with much more rigid straighter leaves, the flowers larger, and the fruit much larger and differently shaped. I have not seen De Candolle's specimens, and his figure represents parallel-celled anthers, but that is probably the fault of the artist. In other respects it agrees well with our plant.

10. ***E. buprestium***, F. Muell. Fragm. iii. 57. A shrub of 8 to 10 ft. (Maxwell). Leaves lanceolate or rarely oblong, usually narrow, acute or mucronate, mostly under 3 in., rigid but not very thick, with the oblique reticulate veins usually prominent, the intramarginal one at a distance from the edge. Peduncles terete or slightly flattened, mostly lateral below the leaves, each usually with about 6 to 10 flowers, on short but not thick pedicels. Buds obovoid. Calyx-tube about 2 lines long, dilated above the ovary. Operculum hemispherical, obtuse, shorter than the calyx-tube. Stamens inflected in the bud, 2 or 3 lines long; anthers broad and flat, opening in short divergent slits confluent at the apex. Fruit nearly globular, about

1 in. diameter when full grown, but sometimes apparently ripe when much smaller, thick and hard, the orifice much contracted, the rim narrow, the capsule sunk. Perfect seeds very few, large, very irregularly shaped, the acute edge sometimes expanded into a narrow wing.

W. Australia. *Drummond*, 3rd Coll. Suppl. n. 12; sandy plains S. of Kojonerup, Helen's Peak, Salt River, etc., the flowers always swarming with a species of *Buprestis*, *Murcell*.

11. ***E. capitellata***, *Sm. Bot. Nov. Holl.* 42, and in *Trans. Linn. Soc.* iii. 285. A moderate-sized or large tree, with a dark-grey furrowed fibrous bark (*F. Mueller*). Leaves from ovate-lanceolate to long-lanceolate, generally very oblique and falcate, and about 3 to 6 in. long, very thick and shining, with the oblique venation of *E. obliqua*. Peduncles axillary or lateral, usually thick and angular, with about 5 to 10 sessile flowers. Buds oblong-clavate or almost ovoid. Calyx-tube turbinate, usually about 3 lines diameter, and rather more in length. Operculum thick, very obtuse, and about as long as the calyx-tube, or rather longer and obtusely conical. Stamens 2 to 3 lines long, all perfect; anthers with divergent cells, confluent at the apex. Ovary flat-topped. Fruit depressed-globose, 4 to 5 lines diameter, the broad rim convex and often very prominent, the valves of the capsule usually protruding beyond it.—*DC. Prod.* iii. 218; *E. piperita*, *Sm.* in *White's Voy.* 226, with a fig. of leaves and fruit, but not the one described in *Trans. Linn. Soc.*; *E. piperita*, *Reichb. Ic. et Descr. Pl.* t. 42 (from the figure and description).

N. S. Wales. Port Jackson, *R. Brown*; "Peppermint-tree" (partly), *White*; North shore, *Woolfs* (with large flowers and a rather longer operculum); N. S. Wales, "Stringy-Bark," *C. Moore*, *Leichhardt*; Blue Mountains, *Wilhelmi*.

S. Australia. Rocky hills, Mount Gambier to St. Vincent's Gulf, *F. Mueller*.

Although nearly allied to *E. obliqua*, this species appears to differ slightly in the thicker leaves with rather less oblique veins, and more essentially in the sessile flowers and fruits, and in the shape of the fruit. When the fruit is not well ripened, the rim is scarcely prominent, yet not quite flat.

Var. (?) *lutifolia*. Leaves short, obliquely ovate, very thick and much more straight, the bark deciduous (*Robertson*).

Victoria. Heath near Portland, *Robertson*. Possibly a sessile-flowered form of *E. santalifolia*, but the form of the calyx is more that of *E. capitellata*, and quite different from that of *E. santalifolia*, var. *Baxteri*.

12. ***E. santalifolia***, *F. Muell. in Trans. Vict. Inst.* i. 35. A large shrub or tree, attaining sometimes a considerable size (*F. Mueller*). Leaves oblong or lanceolate, acute or acuminate, mostly under 3 in., and often nearly straight, very thick and rigid, scarcely showing the oblique veins. Peduncles axillary or lateral, short, terete or nearly so, each bearing about 6 to 8 rather large flowers on very short pedicels. Calyx-tube short and open, above 2 lines diameter. Operculum not seen. Stamens at least 3 lines long; anthers reniform with diverging confluent cells. Fruit nearly globular, about $\frac{1}{2}$ in. diameter, slightly contracted at the orifice, the rim broad, convex, and prominent, the capsule on a level with it, the valves usually horizontal.—*E. santalifolia*, var. *firma*, *Miq. in Ned. Kruidk. Arch.* iv. 133.

S. Australia. Hills near Guichen Bay, Marble range and Venus Bay, *F. Mueller*. (*Herb. F. Mueller* and *Herb. Sonder*.)—This is now reduced by *F. Mueller* to a form of

E. obliqua, but besides the foliage the shape of the fruit is different, being nearly that of *E. macrorhyncha* or *E. capitellata*.

Var. (♀) *Barteri*. Leaves ovate or ovate-oblong, obtuse, usually very oblique, under 3 in. long, very thick, with oblique scarcely conspicuous veins. Peduncles thick and angular, mostly very short. Flowers closely sessile in a dense head. Calyx-tube nearly 3 lines diameter, and shorter than broad. Operculum thick and hemispherical, the buds nearly globular. Ovary flat-topped.—*E. Barteri*, R. Br. Herb.—S. coast, probably Kangaroo Island, *Barter* (Herb. R. Br.). The heads of flowers are very much like those of *E. dumosa*, var. *conglobata*, but the operculum and especially the anthers are quite different. Fruit not seen.

13. ***E. macrorhyncha***, *F. Muell. Herb.* A tall tree with a dark dull-grey furrowed and fibrous bark (*F. Mueller*). Leaves mostly falcate, rather narrow and acuminate, 3 to 5 in. long, the lower ones broader, thick and coriaceous, the very oblique rather distant veins prominent. Peduncles axillary or lateral, terete or scarcely compressed, bearing each about 6 to 8 flowers on pedicels longer than the calyx-tube. Calyx-tube turbinate, smooth, the edge forming a prominent ring round the bud. Operculum conical or acuminate, longer than the calyx-tube. Stamens all perfect; anthers reniform, the cells divergent, confluent at the apex. Fruit depressed-globose, 4 to 6 lines diameter, the rim very broad, convex, and prominent, the valves projecting beyond.—*E. acervula*, Miq. in Ned. Kruidk. Arch. iv. 137, not of Sieb.

Victoria. Mountains on the Macalister river "Iron-bark," Mount Ligar, between Goulburn and Owens rivers, Avon river "Stringy-bark," *F. Mueller*; near Melbourne, "Stringy-bark," *Adamson*.

Although allied to *E. obliqua*, this is readily distinguished by the buds, and especially by the shape of the fruit.

Var. (♀) *brachycorys*. Operculum short and obtuse. Fruit of *E. macrorhyncha*. Expanded flowers not seen, and therefore affinities uncertain.

N. S. Wales. New England, "Stringy-bark," *C. Stuart*.

14. ***E. piperita***, *Sm. in Trans. Linn. Soc.* iii. 286 (partly). A tree attaining a considerable height, with a persistent fibrous bark at least on the trunk. Leaves from ovate-lanceolate and very oblique to lanceolate and nearly straight, rarely above 1 in. long, rather thick and rigid, the veins very oblique, almost as in *E. obliqua*, but usually fine and less conspicuous, and more numerous, especially in the narrower leaves. Peduncles axillary or lateral, usually slightly angular, bearing each about 6 to 12 flowers on short thick pedicels. Buds ovoid, acuminate, very narrow when young. Calyx-tube about 2 lines long and almost as much diameter. Operculum conical or acuminate, rarely very obtuse, about as long as the calyx-tube. Stamens all perfect, about 2 lines long; anther-cells diverging or divaricate, usually confluent at the apex. Ovary flat-topped. Fruit obovoid-globular, 2 to 3 lines diameter, always contracted at the orifice, the rim concave or rarely nearly flat, the capsule sunk, the very small valves not at all or scarcely protruding.—*E. acervula*, Sieb. in DC. Prod. iii. 217; *F. Muell. Fragm.* ii. 64.

N. S. Wales. Port Jackson, *R. Brown*, "Peppermint-tree" (partly), *White, Sieber*, n. 469; Macleay and Clarence rivers, *Beckler*; Twofold Bay, "Stringy-bark," *F. Mueller*.

Victoria. Entrance of the Genoa river, *F. Mueller*.

Var. *laxiflora*. Pedicels rather long. Fruit more obovoid, the rim more depressed.

—Manly Beach, "Peppermint-tree," *Woolfs*; Twofold Bay, "Stringy-bark," *F. Mueller*; Camden, "Stringy-bark," *Buckhouse*; Macleay and Clarence rivers, *Beckler*.

Var. (?) *brachycorys*. Operculum short, hemispherical. One of the "Stringy-barks" from Twofold Bay.

Var. *eugenioides*. Leaf-veins rather more regular and divergent. Pedicels rather longer, and buds broader. Fruit less contracted at the orifice, with a thinner rim.—*E. eugenioides*, Sieb. Pl. Exs. n. 479, and Fl. Mixt. u. 603, and consequently *E. scabra*, Dum. Cours., according to DC. Prod. iii. 218.—N. S. Wales, "Stringy-bark," *Caley, Wools*; Twofold Bay, "Stringy-bark," *F. Mueller*.

The species is sometimes difficult to distinguish in the dried state from some forms of *E. obliqua*, and on the other hand it approaches *E. pilularis*, differing from both of them generally but not strictly, as well in foliage as in the bud and operculum, but more readily in the fruit. The variety *eugenioides* is, however, in some respects almost intermediate between *E. piperita* and *E. pilularis*, var. *acmenioides*.

Some specimens of a "Blue Gum," a tree of 100 ft., from Bathurst plains, *Fraser (in Herb. R. Brown)*, appear to belong to *E. piperita*, but are only in flower with the operculum fallen off and no fruit.

15. ***E. pilularis*, Sm. in Trans. Linn. Soc. iii. 284.** A moderate-sized or large tree, with a dark coloured rough and somewhat furrowed persistent bark. Leaves mostly lanceolate, falcate or nearly straight, acuminate, 3 to 6 in. long, rather thick and smooth, the veins rather oblique, but much less so and more numerous and parallel than in *E. obliqua* and *E. piperita*; they are also finer and often scarcely conspicuous or slightly impressed on the upper side. Peduncles axillary or lateral, or the upper ones forming more or less of a terminal panicle, distinctly flattened in the typical form, bearing each about 6 to 12 flowers, the pedicels often thick and angular, but sometimes rather long and more slender. Buds acuminate. Calyx-tube about 2 lines long and as much in diameter. Operculum conical or acuminate, longer than the calyx-tube. Stamens 2 to 3 lines long, all perfect, inflected in the bud; anthers reniform or broad, the cells diverging or subglobose, confluent at the apex. Ovary flat-topped. Fruit semiglobose or subglobose, truncate, 4 to 5 lines diameter, straight or slightly contracted at the orifice, the rim rather broad, flat or slightly convex or concave, the capsule somewhat sunk or nearly level, the valves usually horizontal.—*E. persicifolia*, DC. Prod. iii. 217, and *F. Muell. Fragm. ii. 61* (in part only), not of *Lodd.*; *E. semicorticata*, *F. Muell. in Journ. Linn. Soc. iii. 86*; *E. ornata* and *E. incrassata*, Sieb. Pl. Exs.

Queensland. Brisbane river, "Black-butt," *F. Mueller*.

N. S. Wales. Port Jackson, *R. Brown, Sieber, n. 477*, and others; northward to Hastings river, *Beckler*; and southward to Twofold Bay, *Oldfield*.—"Black-butt" of numerous collectors, both as "Black-butt" and "Manly-Beach Stringy-bark," *Wools*, and as "Black-butt" and "Plint-wood" in M'Arthur's wood collection for the London Exhibition, 1862. In some specimens designated as the "Great black-butt Gum," the leaves are thicker, and the flowers larger, with dark-coloured stamens.

Victoria. Macalister river, *F. Mueller*.

Var. (?) *acmenioides*. Leaf-veins finer and more distinct; peduncles less flattened and often terete or nearly so; podicels more slender, sometimes 2 to 3 lines long; operculum rather shorter; fruit smaller, with a much thinner rim.—*E. acmenioides*, Schau. in Walp. Rep. ii. 924.—Rockingham Bay, "Stringy-bark," *Dallachy*; summit of Mount Archer, *Thozet*; Pine River, *Fitzalan*; Hastings river, *Tozer*; Paramatta, *A. Cunningham*; Baulkham hills, "White Mahogany," *Wools*.

I have much doubt whether this might not be adopted as a distinct species, although it seems sometimes to pass into the typical *E. pilularis*. In bud, the specimens bear some resemblance to those of *E. Stuartiana*, but the stamens and fruit are different. In the typical *E. pilularis* the leaves are thickish, resembling those of *E. siderophloia* (confounded with it

by De Candolle under the name of *E. persicifolia*), but the veins are more impressed above and the anthers quite different. The fruit of the typical form is nearly that of *E. hæmstoma*, but the stamens very different. In the var. *acmenioides* the general shape of the fruit is nearly the same, but the thinner rim and more sunk capsule give it sometimes a very different appearance.

16. ***E. marginata***, Sm. in *Trans. Linn. Soc.* vi. 302. Usually a large shrub or small tree with a smooth or roughish bark, but sometimes a tree of 12 to 50 ft., with a persistent rough bark (*Oldfield*), or a large forest-tree (*Fraser*). Leaves ovate-lanceolate or lanceolate, acuminate, often falcate, mostly 3 to 5 in. long, with rather numerous very diverging veins, conspicuous especially underneath when the leaf is not very thick, much less so when it is thickly coriaceous, the intramarginal vein at some distance from the edge, the upper surface said to be dark green, and the under one whitish, but the difference scarcely perceptible in dried specimens. Peduncles axillary, or the upper ones without floral leaves, terete or flattened, especially in coarser specimens, each with about 4 to 8 or sometimes more, rarely only 3 flowers, on pedicels of about 2 or 3 lines. Calyx-tube short and very open, 2 to 3 lines diameter. Operculum oblong-conical, from a little longer than to more than twice as long as the calyx-tube, obtuse or acuminate. Stamens 3 to 4 lines long, the filaments very flexuose but not inflected in the bud; anthers reniform, the cells diverging, confluent at the apex. Ovary flat or convex in the centre. Fruit obovoid or subglobose, $\frac{1}{2}$ in. diameter or larger, thick, hard, and smooth, contracted at the orifice, the rim usually flat and not very broad, with the capsule scarcely depressed, but sometimes the rim is still thinner with a sunk capsule; valves small, not protruding.—DC. Prod. iii. 217; *E. floribunda*, Hueg. Enum. 49; Schau. in Pl. Preiss. i. 128; F. Muell. Fragm. ii. 40; *E. hypoleuca*, Schau. in Pl. Preiss. i. 131; *E. Mahagoni*, F. Muell. Fragm. ii. 41.

W. Australia. Dry rocky hills about King George's Sound, *Menzies*, *R. Brown*, and others, and thence to Swan River, *Fraser*; also *Drummond*, n. 85, (5th Coll. ?) n. 185, *Suppl. to 3rd Coll.* n. 15; *Preiss*, n. 229, 242, 244, 251. "Bastard Mahogany" or "Mahogany," *Oldfield*, and others.

The species has something of the foliage of *E. pilularis*, var. *acmenioides*, but is readily distinguished amongst *Renantheræ* by the longer operculum and the arrangement of the stamens in the bud. A specimen with numerous umbels of few flowers, each forming almost a leafy panicle, and resembling at first sight *E. patens*, is marked in F. Mueller's herbarium as "M. Gregory's Bloodwood," but the anthers and all other characters are those of *E. marginata*. Our specimens of the species vary much in the consistency of the leaves and the size of the flowers. In some of the Southern ones the leaves are very thick and coarse, and the flowers almost like those of *E. robusta*. The Swan River ones have generally, but not always, thinner and more veined leaves. The species was originally described by Smith from specimens raised at Kew from seeds brought by *Menzies* from King George's Sound.

According to *Fraser's* notes this forms the chief forest vegetation about Swan River, but there may be some mistake, as I find in other collections the same memorandum attached to *E. calophylla*.

SERIES II. HETEROSTEMONES.—Outer stamens (usually longer than the others) anatherous or with small abortive anthers; anthers of the perfect ones small, globose or truncate; the cells contiguous, opening in pores or oblong slits, sometimes at length confluent.

17. ***E. leucoxylon***, F. Muell. in *Trans. Vict. Inst.* i. 33, and *Fragm.*
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ii. 60. A middle-sized or tall tree, with a persistent rough dark iron-grey bark (*F. Mueller*), dark grey and spongy on the trunk, soft and white on the branches (*Oldfield*). Leaves lanceolate, acuminate, often falcate, mostly 3 to 6 in. long, thicker and more coriaceous than in *E. melliodora*, the veins very oblique and irregular, sometimes scarcely conspicuous, the intramarginal one usually more prominent, not far from the edge, except when the leaf is broad. Peduncles axillary, terete or slightly flattened, with 3 or sometimes more rather large flowers, on pedicels often as long as or longer than the calyx-tube. Buds ovoid, acuminate. Calyx-tube turbinate, usually about 3 lines long and as much in diameter, but sometimes longer. Operculum conical or acuminate, about as long as the calyx-tube. Stamens usually very unequal, red or white, the outer ones often $\frac{1}{2}$ in. long or more, and usually anatherous, the inner much shorter; anthers very small, truncate, with contiguous cells opening in terminal pores or short oblong slits, sometimes at length confluent. Ovary flat-topped. Fruit obovoid or subglobular, truncate, not contracted at the orifice, 3 or sometimes 4 lines diameter, the rim thick, flat, or slightly convex, the capsule slightly depressed.—*Miq.* in *Ned. Kruidk. Arch.* iv. 126; *E. sideroxylon*, *A. Cunn.* in *Mitch. Trop. Austr.* 339 (name only).

N. S. Wales. George's River, *Caley*.—Common "Iron-bark" of the interior, *Fraser*, *A. Cunningham*; red "Iron-bark" of Liverpool, also Paramatta and Mudgee, *Woolfs*; "Iron-bark" of New England, *C. Stuart*; "Iron-bark" or "Black Mountain-Ash" of Twofold Bay, *Oldfield*.

Victoria. Avoca river, *F. Mueller*; Murray river, *Dallachy*.

S. Australia. From the Murray to St. Vincent's Gulf, *F. Mueller*, and others.

Var. angulata. Flowers large, the calyx distinctly angled.—Devil's Country, S. Australia, *F. Mueller*.

Var. pallens. Leaves not so coriaceous and whitish.—New England, *C. Stuart*.

Var. minor. Flowers rather smaller and often more numerous at the ends of the branches.—Paramatta, *Woolfs*; also several of the S. Australian specimens, "White Gum," *Behr*.—This variety seems almost to pass into *E. melliodora*.

18. ***E. melliodora***, *A. Cunn. Herb.; Schau. in Walp. Rep.* ii. 924. A moderate-sized tree of irregular growth, with a smooth bark of a pale lead colour (*A. Cunningham*), scaling off in flakes in the upper part of the tree (*C. Moore*), furrowed and persistent (*F. Mueller*). Leaves lanceolate, usually narrow, acuminate and often falcate, mostly 3 to 4 in. long, rather thick, with very fine and rather numerous but oblique veins, the intramarginal one at a distance from the edge. Peduncles axillary or lateral, somewhat angular but not thick, usually short, each with an umbel of 4 to 8 rather small flowers on pedicels of 1 to 2 lines. Calyx-tube campanulate, about 2 lines long and diameter. Operculum hemispherical or shortly conical, with a small point, varying from a little shorter to rather longer than the calyx-tube. Stamens about 2 lines long, the outer ones rather longer and anatherous, anthers of the others small, with contiguous cells opening in terminal pores, sometimes at length confluent. Ovary short, flat-topped; stigma dilated. Capsule subglobose, truncate, not contracted at the orifice, or rarely ovoid and somewhat contracted; the rim rather broad, flat or nearly so, the capsule more or less depressed, but the valves sometimes prominent when open.—*E. patentiflora*, *Miq.* in *Ned. Kruidk. Arch.* iv. 125.

N. S. Wales. A frequent gum about Bathurst and to the north and west, *A. Cun-*

ningham, C. Moore; Rocky Creek, head of the Gwydir and Severn rivers, "Yellow Box," Leichhardt; New England, C. Stuart, with a smooth white bark, the specimen in bud only.

Victoria. Hills on the Yarra and Snowy rivers, Wanganatta, near Mount Ligar, etc., "Yellow Box," F. Mueller; "Red Gum," Adamson.

19. **E. gracilis**, F. Muell. in *Trans. Vict. Inst.* i. 35, and *Fragm.* ii. 55. A tall shrub or small tree, with a silvery-grey smooth bark (Beckler). Leaves narrow-lanceolate or oblong-linear, mostly mucronate, and under 3 in. long, thick and densely dotted, the numerous very oblique veins scarcely visible. Peduncles short, axillary or the upper ones in a short terminal panicle, terete or slightly angular, each with about 4 to 8 rather small flowers. Calyx-tube obconical, usually rather narrow and prominently 4-angled, about 2 lines long, tapering into a very short pedicel, or almost sessile. Operculum shorter than the calyx-tube, hemispherical conical or shortly acuminate. Stamens inflected and flexuose, the outer ones anantherous and nearly 3 lines long, the perfect ones shorter; anthers small, globular, the cells distinct, opening in circular or oblong pores. Ovary short. Fruit oblong or narrow-urceolate, about 3 lines long, the rim narrow, the capsule deeply sunk.—Miq. in Ned. Kruidk. Arch. iv. 124; *E. fruticetorum*, F. Muell. *Fragm.* ii. 57 (partly).

N. S. Wales. Desert of the Darling and Murray, *Victorian Expedition*.

Victoria. Desert of the Murray and N.W. portion of the colony, *Dallachy, L. Morton*.

S. Australia. Near Spencer's Gulf, F. Mueller.

W. Australia. Phillips Ranges, Fitzgerald and Salt rivers, *Maxwell*; also *Drummond*, 5th Coll. n. 184 and suppl. n. 36; n. 34 of the 5th Coll. is also the same, with a shorter fruit more distinctly pedicellate.

Var. *brevisflora*. Calyx-tube scarcely angled, $1\frac{1}{2}$ to nearly 2 lines long. Fruit about 2 lines only, but the deeply sunk capsule and the stamens entirely as in the ordinary form.—Darling and Murray Desert, also F. Mueller's Spencer's-Gulf specimens, which being in fruit only are somewhat doubtful.

The Western specimens have the umbels almost all solitary and axillary, but do not appear otherwise to differ from the Eastern ones.

20. **E. paniculata**, Sm. in *Trans. Linn. Soc.* iii. 287. A large shrub or small or moderate-sized tree, the notes on the bark uncertain. Leaves lanceolate, falcate, acuminate, usually rather broad, 3 to 5 in. long, coriaceous and smooth with numerous fine but oblique veins usually concealed in the thick texture. Peduncles short, angular, usually in a short terminal corymbose panicle or a few solitary in the upper axils, each with about 3 to 6 or sometimes more flowers. Calyx-tube broadly turbinate, 2 to 3 lines diameter, often angular, tapering into a short pedicel. Operculum from obtuse and short to conical and as long as the calyx-tube. Stamens 2 to 3 lines long or sometimes more, inflected in the bud, the outer ones anantherous, anthers of the perfect ones small, at first truncate, the cells opening in terminal pores or at length spreading out, divaricate and confluent. Ovary short, flat-topped. Fruit from subglobose to obovoid-oblong, truncate, and often slightly contracted at the orifice, varying from 2 to 4 lines diameter, the rim narrow, the capsule more or less sunk.—DC. *Prod.* iii. 220; *E. terminalis*, Sieb. Pl. Exs.

N. S. Wales. Port Jackson, R. Brown, Sieber, n. 468, and many others; a "She-iron-bark," Woolls.

Var. *fasciculosa*. Flowers rather smaller, operculum usually short.—*E. fasciculosa*, F. Muell. in Trans. Vict. Inst. 34.

S. Australia. Lofty, Bugle, and other ranges along St. Vincent's Gulf, *F. Mueller*; Banks of the Three-Well river, *Waterhouse*; "White Gum," *Behr*.

Var. *angustifolia*. Leaves narrow and thin, as in some varieties of *E. crebra*. Umbels loose, paniculate. Operculum conical. Outer stamens anantherous.—N. S. Wales, "Narrow-leaved Iron-bark," *Woolfs*.

Var? *conferta*. Flowers still smaller, like those of *E. gracilis*, Leaves rather short and broad.

W. Australia, *Drummond*, (3rd Coll.?) *Suppl.* n. 9.

The species is allied to *E. gracilis*, with which F. Mueller (*Fragm.* ii. 67) proposes to unite his *E. fasciculosa*, but both the foliage and the flowers appear to me to be distinct. When large, the flowers almost assume the aspect of the smaller forms of *E. corymbosa*.

21. ***E. hæmastoma*, Sm. in Trans. Linn. Soc. iii. 285.** A large timber tree, with a smooth deciduous bark, leaving a spotted or variegated trunk (*F. Mueller*) or the bark sometimes smooth and sometimes half-barked, like *Black-butt* (*Woolfs*). Leaves usually oblique or falcate, lanceolate, about 4 to 6 in. long, thickly coriaceous, the veins very oblique not close and often anastomosing as in *E. obliqua*, the lower ones sometimes broader and more reticulate. Peduncles more or less angular or compressed, axillary, lateral or a few in a short terminal oblong panicle, each with about 4 to 8 flowers. Buds clavate. Calyx short and broad, scarcely 2 lines diameter, shortly tapering into a rather long, thick or rather slender pedicel. Operculum very short, hemispherical, obtuse. Stamens 2 to 3 lines long, inflected, the outer ones longer and anantherous; anthers of the perfect ones small, the cells opening in short oblong divergent at length confluent slits. Fruit globular-truncate or pear-shaped, 3 to 4 lines diameter, the rim broad, flat or nearly so, usually deeply coloured; the capsule slightly depressed, the valves often protruding when open but very soon falling away.—DC. *Prod.* iii. 219; F. Muell. *Fragm.* ii. 51; *E. signata*, F. Muell. in Journ. Linn. Soc. iii. 85; *E. falcifolia*, n. 22 and 23, from N. S. Wales, *Miq.* in Ned. Kruidk. Arch. iv. 137.

Queensland. Wide Bay, *C. Moore*; Brisbane river, Moreton Bay, "Spotted Gum," *F. Mueller*.

N. S. Wales. Port Jackson, "Blue or White Gum," *Woolfs*; Illawarra, "Black-butt," *A. Cunningham*; in the interior, "Mountain Ash" and "Spotted Gum," *Macarthur*.

Var. *micrantha*. Leaves often 6 to 8 in. long or even more, the veins less conspicuous. Flowers and fruit much smaller, but not otherwise different.—*E. micrantha*, D.C. *Prod.* iii. 217, and Mem. Myrt. t. 5; Port Jackson, *R. Brown*, *Sieber*, n. 497; Paramatta, *Woolfs*.

22. ***E. microcorys*, F. Muell. *Fragm.* ii. 50.** A tall tree with a persistent furrowed fibrous bark (*F. Mueller*). Leaves mostly ovate-lanceolate or broad lanceolate, acuminate, straight or very unequal at the base, about 3 to 4 in. long, not very thick, the veins very divergent and fine but prominent and not close. Peduncles axillary or in short terminal corymbs, terete or somewhat angular, compressed, $\frac{1}{2}$ to 1 in. long, each with about 4 to 8 flowers. Buds clavate, short but tapering into thick pedicels of 2 to 3 lines. Calyx-tube short, with the free part much dilated, about 2 lines diameter. Operculum much shorter than the calyx, broad, flat, very obtuse or slightly umbonate. Stamens inflected in the bud, the outer ones about 3 lines long, anantherous or with small abortive anthers, the inner ones much shorter and

perfect; anthers small with diverging at length confluent cells. Ovary flat-topped. Fruit obovoid-oblong, contracted at the orifice, tapering at the base, about 3 lines long and scarcely 2 lines diameter, the rim narrow, the capsule sunk.

Queensland. Brisbane river, *F. Mueller*; Sandy-mount Range, towards Brisbane, *Leichhardt*.

N. S. Wales. N.W. interior, *Fraser*; Hastings river, *Beckler*.

The species has the flowers nearly of *E. hamastoma*, with a differently-shaped fruit, and the foliage almost of *E. marginata*.

SERIES III. PORANTHERÆ.—Stamens all perfect, except rarely in *E. bicolor* and perhaps in *E. polyanthemos*; anthers small and globular or broader than long, the cells distinct, opening in terminal or more or less lateral circular pores, sometimes extending at length into oblong slits.

23. ***E. pruinosa***, *Schau. in Walp. Rep. ii. 926*. A tree with a persistent whitish-grey rough and fissured bark (*F. Mueller*), the foliage often glaucous or mealy-white. Leaves sessile, opposite or nearly so, very rigid, orbicular-cordate, ovate or oblong, obtuse or rarely almost acute, mostly 2 to 4 in. long. Umbels 3- to 6-flowered, on short peduncles in a terminal corymb or rarely in the upper axils. Pedicels terete, nearly or quite as long as the calyx-tube. Calyx-tube 2 to 3 lines diameter, not angled, more or less tapering into the pedicel. Operculum hemispherical or shortly conical, more or less acuminate, rarely as long as the calyx. Stamens 2 to nearly 3 lines long, inflected in the bud; anthers very small and globular, with distinct parallel cells, opening in very short slits or circular pores. Ovary slightly convex in the centre. Fruit from ovoid-truncate to almost cylindrical, 3 to 5 lines diameter, scarcely or not at all contracted at the orifice, the rim narrow, the capsule slightly sunk, the valves sometimes protruding.—*F. Muell. Fragm. iii. 132*; *E. spodophylla*, *F. Muell. Fragm. ii. 71*.

N. Australia. Islands of the Gulf of Carpentaria, *R. Brown, Henne*; dry ridges on the Victoria river and near Sea Range, *F. Mueller*.

Like many other species, this varies with the young branches acutely 4-angled, almost winged, or even on the same specimen quite terete, and very much in the size of the flowers and fruit.

24. ***E. oligantha***, *Schau. in Walp. Rep. ii. 926*. Leaves all petiolate but very broad, orbicular or ovate, obtuse or shortly acuminate, 3 to 4 in. long, rigidly coriaceous with prominent diverging veins, parallel but rather distant. Umbels 3- to 6-flowered, collected in a short terminal panicle. Peduncles terete. Calyx-tube campanulate, about 3 lines long and as much in diameter, tapering into a short pedicel. Operculum rather thick, conical, shorter than the calyx. Stamens 2 to 3 lines long, all perfect, inflected in the bud; anthers very small and globular, with distinct parallel cells opening in circular pores or very short slits. Fruit unknown.

N. Australia. Copeland Island, N. coast, *A. Cunningham*. Until the fruit is known, the precise affinities of this species cannot be determined. It is very unlike any other one I have seen.

25. ***E. polyanthemos***, *Schau. in Walp. Rep. ii. 924*. A tree sometimes small, sometimes attaining 40 to 50 ft., with an ash-grey persistent rough and furrowed bark (*F. Mueller*). Leaves on rather long petioles,

broadly ovate-orbicular or rhomboidal, obtuse or rarely shortly acuminate, mostly under 3 in. long, passing in older trees into ovate-lanceolate obtuse and 3 in. long or more, rather rigid with fine diverging anastomosing veins, the intramarginal ones distant from the edge. Umbels of 3 to 6 small flowers, shortly pedunculate and usually several together in short oblong or corymbose panicles in the upper axils or at the ends of the branches. Pedicels rarely longer than the calyx-tube and sometimes very short. Calyx-tube 1 to $1\frac{1}{2}$ lines long. Operculum obtusely conical or almost hemispherical, nearly as long as the calyx-tube. Stamens 1 to 2 lines long, all perfect or rarely a few of the outer ones anatherous; anthers small, with globular distinct cells, opening in round pores. Ovary flat-topped. Fruit turbinate, in some specimens 3 lines diameter, in others not 2 lines, not contracted at the orifice, the rim narrow, the capsule sunk.—*E. populifolia*, Hook. Ic. Pl. t. 879; *E. populnea*, F. Muell. in Journ. Linn. Soc. iii. 93.

N. Australia. Islands of the Gulf of Carpentaria, *R. Brown*.

Queensland. Burdekin, Mackenzie, and Dawson rivers, *F. Mueller*; Wide Bay, *Bidwill*.

N. S. Wales. George River, *R. Brown*; Goulburn Plains and flat country near Bathurst, and the Lachlan river, "Bastard Box," *A. Cunningham*. Forest-land of the interior, *Caley*; Nepean river and Mudgee Road, "Bastard Box," and "Lignum Vitæ," *Woolfs*; also in *Leichhardt's* collection.

Victoria. Ovens river, *F. Mueller*.

The tropical specimens to which, from the character given, belongs *E. Baueriana*, Schan. in Walp. Rep. ii. 924, have generally smaller flowers and fruits than the southern ones, but do not otherwise differ.

26. **E. Behriana**, *F. Muell.*; *Miq. in Ned. Kruidk. Arch.* iv. 139. A tall shrub or small tree (*F. Mueller*). Leaves from ovate to ovate-lanceolate, rarely lanceolate, mostly acute or acuminate, rarely above 3 in. long, thick and smooth, the fine very oblique veins scarcely conspicuous, the intramarginal one at some distance from the edge. Peduncles short, terete or slightly angular, with few rather small sessile flowers, the umbels generally several together forming short oblong or thyrsoid panicles terminal or in the upper axils or several of these together in a compound terminal panicle. Buds obovoid. Calyx not 2 lines long, more or less attenuate at the base. Operculum short, hemispherical, obtuse or scarcely umbonate, the outer membranous one often still persistent in the advanced bud. Stamens all perfect, not 2 lines long, anther-cells small, globular, opening in circular pores, rarely at length confluent. Ovary flat-topped. Fruit obovoid-globular, truncate, about 2 lines diameter, the rim flat, the capsule slightly sunk.

Victoria. Bacchus Marsh, Avoca river, and Pine Forest, *F. Mueller*.

Var. *purpurascens*, *F. Muell.* Flowers larger. Peduncles and calyx angular, the latter fully 2 lines long. Operculum obtusely conical, but shorter than the calyx-lobe. Stamens purplish.—Lake Wangaroo, *Wilhelmi*.

27. **E. bicolor**, *A. Cunn. Herb.*; *Hook. in Mitch. Trop. Austr.* 390. A large shrub or sometimes a tree of 30 to 40 ft., with a persistent ash-grey or blackish bark (*F. Mueller*, *A. Cunningham*), or a tall tree with a smooth white bark (*Dallachy*). Leaves lanceolate, narrow or rarely passing into ovate-lanceolate, mostly 3 to 4 in. but sometimes 5 or 6 in. long, not very thick, often glaucous or pale coloured, the veins fine, oblique, not close, the

marginal one at a distance from the edge and sometimes very prominent towards the base of the leaf. Flowers small, about 3 to 8 together on short peduncles, the umbels forming usually axillary or terminal panicles shorter than the leaves. Pedicels shorter than the calyx. Calyx-tube turbinate, nearly $1\frac{1}{2}$ lines long. Operculum rather thin, hemispherical, obtuse or umbonate, shorter than the calyx-tube. Stamens 1 to 2 lines long, all perfect or occasionally a few of the outer ones without anthers; anthers small, with 2 small globular cells opening in round pores or short oblong slits. Ovary flat-topped. Fruit globular-truncate or pear-shaped, about 2 lines diameter or rarely nearly 3, contracted at the orifice, the rim rather broad, flat or depressed; the capsule somewhat depressed.—F. Muell. in Journ. Linn. Soc. iii. 90; *E. pendula*, A. Cunn. in Steud. Nom. Bot. ed. 2; *E. largiflorens*, F. Muell. in Trans. Vict. Inst. i. 34 and Fragm. ii. 58; *E. hæmastoma*, Miq. in Ned. Kruidk. Arch. iv. 130, as to the Murray specimens, not of Sm.

Queensland. Port Denison, *Dallachy*.

N. S. Wales. Port Jackson and Williams river, *R. Brown*; Baulkham hills, "Iron-bark," *Caley*; on the Maranoa, S. of St. George's Bridge, "Bastard Box," *Mitchell*; in the interior, *A. Cunningham*; from the Darling to the Barrier range, *Victorian Expedition*.

Victoria. Mallee scrub, near the Avoca and generally in the N.W. portion of the colony, "Bastard Box," *F. Mueller*, and others.

S. Australia. Scrub near the Murray and thence to St. Vincent's Gulf, *F. Mueller*, and others; Three-Well river, *Waterhouse*, with rather larger flowers.

Var. *parviflora*, F. Muell. Flowers much smaller. Stamens not 1 line long.—Burdekin river, *F. Mueller*.

The southern and desert specimens have rather thicker leaves than those from Queensland, but I can find no other difference. In all there are occasionally 2 or 3 flowers on the specimen twice the size of the others, with the stamens elongated and anantherous, perhaps owing to some insect. The species differs from *E. polyanthemus* in its narrow leaves and from *E. odorata* in inflorescence.

28. ***E. odorata***, *Behr in Linnæa*, xx. 657. A small or moderate-sized tree with a dark grey rough persistent bark (*F. Mueller*). Leaves lanceolate, usually narrow, but sometimes broad, rarely above 4 in. long, rather rigid, the veins oblique and sometimes very much so, and not close, the intra-marginal one at some distance from the edge. Peduncles mostly axillary, rather thick and short but scarcely angular. Pedicels sometimes scarcely any and rarely as long as the calyx-tube. Calyx-tube campanulate, about $2\frac{1}{2}$ lines long and as much in diameter. Operculum hemispherical or obtusely conical, shorter than the calyx-tube. Stamens 2 to 3 lines long, all perfect, very flexuose and slightly inflected in the bud; anthers very small, with globular distinct cells, opening in pores or short oblong slits. Ovary flat-topped. Fruit obovoid-truncate, about 2 lines diameter, slightly contracted at the orifice or almost urceolate, tapering at the base, the rim not broad; the capsule deeply sunk.—F. Muell. Fragm. ii. 66, and Pl. Vict. Suppl. t. 17; Miq. in Ned. Kruidk. Arch. iv. 129; *E. porosa*, Miq. in Ned. Kruidk. Arch. iv. 132; *E. cajuputea*, Miq. l. c. 126.

S. Australia. Hills chiefly calcareous near Flinders Ranges and towards Spencer's and St. Vincent's gulfs, "Peppermint tree" and "Red Gum," *F. Mueller*.

Some specimens bear much resemblance to *E. melliodora*, but have the thicker leaves and the anthers all perfect and nearly globular of *E. odorata*, they are not in fruit.

Var. *floribunda*. Inflorescence occasionally compound, connecting the species in some

measure with *E. bicolor*, but the foliage and shape of the flowers and fruits are rather those of *E. odorata*.

Victoria. On the Yarra, *F. Mueller*.

29. ***E. uncinata***, Turcz. in Bull. Mosc. 1849, ii. 23. A tall shrub, with a smooth red or ash-grey bark, coming off in coriaceous plates (*Oldfield*). Leaves narrow-lanceolate or linear, usually under 3 in. thick, the very fine veins scarcely visible, distant and rather oblique, but not so much so as in *E. gracilis*, always conspicuously black-dotted, especially underneath. Peduncles axillary, rather short, terete or scarcely flattened, bearing each an umbel or head of about 6 to 8 small flowers. Buds ovoid or oblong. Calyx-tube about $1\frac{1}{2}$ lines long, sessile or tapering into a short pedicel. Operculum obtusely conical or acuminate, as long as or rather longer than the calyx-tube. Stamens about 2 lines long, all perfect, the filaments slender and inflected with an acute angle, as in *E. corynocalyx* and *E. decurva*; anthers very small, nearly globular, with contiguous cells opening in terminal pores. Ovary flat-topped. Capsule globular-truncate or pyriform, 2 to nearly 3 lines diameter, contracted at the orifice, the rim concave or at length nearly flat, the capsule sunk, but the valves often acuminate by the split base of the style, and then the subulate tips protruding.—*E. leptophylla*, Miq. in Ned. Kruidk. Arch. iv. 123; *E. oleosa*, F. Muell., Miq. l. c. 127; F. Muell. Fragn. ii. 56 (partly).

N. S. Wales. In the Euryalcan scrub of the interior, *Fraser*; desert of the Murray and Darling, *Herb. F. Mueller*.

Victoria. Wimmera and desert of the Murray, *Dallachy, F. Mueller*.

S. Australia. Gawler Town, *Behr*; Murray desert, *F. Mueller*.

W. Australia. Plantagenet and Stirling ranges and eastward to Cape Riche, *Maxwell, Harvey, Drummond, 3rd Coll. n. 66*; Murchison river, *Oldfield* (mostly with very narrow leaves).

Var. *latifolia*, W. Australia, *Drummond, 4th Coll. n. 76*.

Var. (?) *major*. Flowers larger, contracted into very short thick pedicels, the peduncles more flattened. Fruit rather larger, scarcely contracted at the orifice, the rim broader and flatter, the valves not acuminate.—Murchison river, *Oldfield*.

Var. *rostrata*. Flowers more distinctly pedicellate, the operculum acuminate and longer than the calyx.—Phillips Range, *Maxwell*; Murchison river, *Oldfield*, also *Drummond, 5th Coll. n. 186*.

The species has much the habit of *E. gracilis*, but is very different in stamens and fruit. It is also sometimes very near *E. micranthera*, but differs in the stamens. The young plant has sometimes sessile ovate opposite leaves.

30. ***E. hemiphloia***, *F. Muell. Englm. ii. 62*. A tall tree, sometimes reduced to a shrub. Leaves ovate-lanceolate or lanceolate, falcate or nearly straight, about 3 to 5 in. long, thick and rigid, with very oblique distant veins, almost as in *E. obliqua* and *E. hævastoma*. Peduncles slightly angular, about 4- to 8-flowered, the umbels mostly forming short terminal panicles, although the fruiting ones are usually lateral below the leaves. Calyx-tube 2 to $2\frac{1}{2}$ lines long and scarcely so much in diameter, tapering into a short thick pedicel or almost sessile. Operculum conical, acuminate, as long as the calyx-tube or rarely shorter and more obtuse. Stamens pale-coloured, about 2 lines long or rather more, all perfect, inflected in the bud; anthers very small, globular, the cells distinct, but opening in pores rather than in slits. Ovary rather deep, slightly conical or convex in the centre.

Fruit ovoid-oblong, about 3 to 4 lines long, truncate and slightly contracted at the orifice, very smooth, the rim narrow, the capsule deeply sunk.

Queensland. Moreton Bay, "Box-tree," *F. Mueller*.

N. S. Wales. Paramatta, "Box-tree," *Woolfs*.

S. Australia. Memory Cave and Kangaroo Island, *R. Brown*; Port Lincoln, *Wilhelmi*.

This species has the foliage of *E. obliqua* and of *E. hæmastoma*, but the anthers and fruit are quite different. In Brown's S. Australian specimens the leaves are smaller, but in Wilhelmi's they are the same as in the northern ones, and I can find no character to distinguish them. Both *R. Brown* and *F. Mueller* had given them the MS. name of *E. purpurascens*.

Var. (?) *parviflora*. Flowers considerably smaller, Mount Elliott, "Iron-bark," *Fitzalan*. Specimens in Leichhardt's collection, marked "Box," from the range behind the Condamine, appear to be the same with rather longer very angular flowers.

SERIES IV. MICRANTHERÆ.—Anthers very small and globular or broader than long, almost as in the *Porantheræ*, but opening in more oblong or longitudinal slits, almost as in the *Normales*, the cells more distinct than in the *Porantheræ*, less so than in the *Normales*.

31. ***E. cneorifolia*, DC. Prod. iii. 220, and Mem. Myrt. t. 9, from the char. and fig.** A shrub or small tree, of 6 to 10 ft. (*F. Mueller*). Leaves from narrow-linear to oblong-lanceolate, straight or rarely falcate, mostly under 4 in. long, thick, with the fine diverging veins scarcely ever visible. Peduncles short, terete or scarcely angular, each with a head of 4 to 8 flowers, closely sessile or obscurely pedicellate. Calyx 2 to $2\frac{1}{2}$ lines long, rather thick but not angular. Operculum hemispherical, much shorter than the calyx-tube. Stamens about 2 lines long, inflected in the bud; anthers very small, nearly globular, with distinct parallel cells. Fruit pear-shaped or nearly globular, about 3 lines diameter, contracted at the orifice, the rim rather thick, flat or slightly convex, the capsule more or less sunk, but the valves often slightly protruding.—*E. santalifolia*, *F. Muell.* in Trans. Vict. Inst. 35, partly.

Victoria? Dense scrub on Mount Useful, *F. Mueller*, specimens in fruit only, and therefore doubtful.

S. Australia. Beyond Salt's Creek, and near Port Lincoln, *F. Mueller*; Kangaroo (or Deercs) Island, *R. Brown*, *Baudin's Expedition*, *Waterhouse*. This comes near to some narrow-leaved forms of *E. dumosa*, but the fruit is quite different, nearer to that of *E. oleosa*, and the anthers are very much smaller. The large-fruited specimens, originally sent by *F. Mueller* and described by *Miquel* as *L. santalifolia*, belong to a distinct species of the *Renantheræ*, for which I have retained the name.

32. ***E. stricta*, Sieb. in DC. Prod. iii. 218.** A shrub or small tree, the bark stringy (*Woolfs*). Leaves linear-lanceolate or linear, straight or falcate, obtuse or acuminate, mostly 2 to 4 in. long, very thick and shining, the apparently oblique and distant veins very rarely visible. Peduncles short, slightly angular or terete, each with about 4 to 8 shortly pedicellate small flowers. Buds ovoid. Calyx not 2 lines diameter; operculum hemispherical and mucronate or conical, not longer than the calyx-tube. Stamens not above 2 lines long, inflected in the bud; anthers very small and globular, with distinct parallel cells, opening at first in round pores which extend into oblong slits. Fruit globose-truncate, smooth, 3 to 4 lines diameter, con-

tracted at the orifice, the rim narrow, the capsule sunk, the valves not protruding.—DC. Mem. Myrt. t. 8 (the anthers incorrect); *E. microphylla*, A. Cunn. in Field, N. S. Wales, 350 (partly); *E. Cunninghamii*, G. Don, Gen. Syst. ii. 821 (partly).

N. S. Wales. Port Jackson or Blue Mountains, *Sieber*, n. 472; forms brushes in the elevated parts of the Blue Mountains, *A. Cunningham*, *Woolfs*. Some specimens, confounded with it by A. Cunningham, belong to the narrow-leaved form of *E. stellulata*, in which the veins are sometimes inconspicuous, but which is readily distinguished by the shape of the buds, the reniform anthers, etc.

33. ***E. micranthera*, F. Muell. Herb.** A shrub, of 6 to 10 ft., with a smooth bark (*Maxwell*). Leaves oblong-lanceolate, acuminate or almost obtuse, 2 to nearly 4 in. long, very thick and smooth so as wholly to conceal the veins. Peduncles very short, often flattened, with 3 to 6 flowers like those of *E. uncinata* or *E. oleosa*, but larger. Calyx-tube turbinate, 2 to nearly 3 lines long, tapering into a very short thick pedicel or almost sessile. Operculum very obtuse and shorter than the calyx-tube. Stamens inflected, sometimes almost as acutely so as in *E. corynocalyx* and *E. uncinata*, but the filaments not so fine and the anthers very minute, with parallel contiguous cells. Ovary flat-topped. Fruit globose-truncate, 4 to 5 lines diameter, somewhat contracted at the orifice, the rim broad, flat or slightly concave, the capsule very slightly sunk.

W. Australia. Sandy hummocks, from Israelite Bay to Eyre's Relief, *Maxwell*.

Possibly a form of *E. uncinata*, but both the operculum and the stamens appear different.

34. ***E. decipiens*, Endl. in Hueg. Enum. 49.** Varies from a shrub of 6 to 8 ft., to a small or even a large tree, attaining 60 to 70 ft., with the bark rough and persistent (*Oldfield*), fragile, soft and spongy (*Maxwell*). Leaves ovate, ovate-lanceolate or lanceolate, acuminate, rarely exceeding 4 in. and often under 3, rather thick, the fine diverging veins scarcely conspicuous; the intramarginal one usually at a distance from the edge. Peduncles short, mostly axillary, terete or slightly flattened, each with a head of 6 to 12 sessile flowers. Calyx-tube turbinate, about 2 lines long, the border usually prominent in the bud. Operculum conical or acuminate, from a little longer to nearly twice as long as the calyx-tube. Stamens inflected in the bud; anthers very small, globular, but with distinct cells, parallel or nearly so, opening at first in round pores which become at length longitudinal slits. Ovary conical in the centre. Fruit broadly turbinate, pear-shaped or globose, truncate, 3 lines diameter or rather more, contracted at the orifice, the rim rather broad, flat or scarcely convex, the capsule more or less sunk, but the points of the valves usually protruding.—Schau. in Pl. Preiss. i. 129.

W. Australia. Sand plains, Kalgan river, *Oldfield*, and eastward towards Cape Riche, *Harvey*, *Drummond*, 3rd Coll. Suppl. n. 14, *Preiss*, n. 241, all apparently the shrubby form; the arborescent one, Limestone hills, Swan River, and Banestee river, on the road to King George's Sound, "Flooded Gun," *Oldfield*; swamps about Tulbrinnup lake, *Maxwell*. The species is allied in its fruit to *E. uncinata* and *E. oleosa*, and almost intermediate between them as to stamens, differing from both in foliage and in the shape of its sessile flowers.

35. ***E. corynocalyx*, F. Muell. Fragn. ii. 43.** A tall elegant shrub. Leaves usually rather broad, ovate-lanceolate or lanceolate, obtuse or acumi-

nate, mostly 3 to 5 in. long, thick and coriaceous, the veins rather numerous, oblique and often prominent, the intramarginal one at some distance from the edge. Peduncles usually lateral below the leaves, $\frac{1}{2}$ to 1 in. long, terete or slightly angular, erect or spreading, each with 6 to 12 or more distinctly pedicellate flowers. Calyx narrow-urceolate or almost cylindrical, 3 to 5 lines long and rarely 2 lines diameter, smooth or ribbed. Operculum broad and very short, flat or slightly umbonate. Stamens 2 to 3 lines long, the filaments slender and acutely inflected in the bud as in *E. uncinata*; anthers very small, globular, with distinct parallel cells. Ovary flat-topped. Fruit ovoid, often strongly ribbed, nearly $\frac{1}{2}$ in. long, contracted at the orifice, the rim narrow, the capsule deeply sunk.—*E. cladocalyx*, F. Muell. in *Linnaea*, xxv. 388; Miq. in *Ned. Kruidk. Arch.* iv. 135.

S. Australia. Marble Range, *Wilhelmi*.

36. **E. albens**, *Miq. in Ned. Kruidk. Arch.* iv. 138. A tree, attaining 60 to 80 ft., with a dull green persistent bark (*F. Mueller*), separating in smooth laminae or strips (*C. Stuart*), the foliage usually very glaucous or almost mealy-white. Leaves usually large, broad, ovate-lanceolate or lanceolate, often 6 in. long or more, rigid, with oblique veins, the intramarginal one at a distance from the edge. Peduncles lateral, rigid, scarcely flattened, sometimes $\frac{3}{4}$ in. long, but often much shorter, bearing 4 to 8 rather large flowers. Buds long and acuminate, apparently sessile, but really tapering into short thick angular pedicels. Calyx-tube 3 to 4 lines long and scarcely 2 lines diameter, 2-angled or nearly terete. Operculum conical, acuminate, as long as or rather shorter than the calyx-tube. Stamens 3 to 4 lines long, all perfect, inflected; anthers very small and globular, with distinct parallel cells, opening at length to the base or nearly so. Ovary short, slightly conical in the centre. Fruit obovoid-oblong, truncate, nearly $\frac{1}{2}$ in. long, the rim narrow, the capsule deeply sunk.

N. S. Wales. Macquarrie river, *A. Cunningham*; New England, "White Gum," *C. Stuart*; between Alford's and the Range, "Box," *Leichhardt*.

Victoria. Poor plains, between Ten-mile Creek and Broken River, "White Box," *F. Mueller*.

A very distinct species with something of the habit of the *Robusta*, but with the anthers of the *Micranthera*. *F. Mueller* refers it to *E. pallens*, DC., which I have not seen. De Candolle's character agrees rather better with *E. dealbata* than with *E. albens*, but the short hemispherical operculum he describes occurs in neither.

37. **E. Bowmani**, *F. Muell. Herb.* Stature and bark unknown. Leaves ovate-lanceolate or broadly lanceolate, mostly 4 to 6 in. long, straight or falcate, obtuse or acuminate, rigid, with oblique veins, the marginal one at a distance from the edge, like those of *E. albens*, but not glaucous. Peduncles axillary or lateral, more or less flattened, bearing 4 to 8 rather large flowers. Buds obtuse, tapering into a short very thick pedicel or nearly sessile. Calyx-tube obovoid or turbinate, thick, about 2 lines long and as much diameter. Operculum thick, obtuse, longer than the calyx-tube. Stamens 3 to 4 lines long, the filaments slender, inflected in the bud, but not showing the acute angle of *E. corynocalyx*; anthers very small and globular, but with distinct parallel cells, opening longitudinally. Ovary conical in the centre. Fruit unknown.

Queensland, Bowman. I have some hesitation in describing the species without having

seen the fruit, but it appears quite distinct from any other one known to me. It seems to be allied to *E. albens* and *E. corynocalyx*, but differs from both in the shape of the flowers.

Specimens of two other trees or shrubs, in F. Mueller's collection, are probably closely allied to, if not varieties of the same; one from the head of the Gwydir, *Leichhardt*, in bud only, is glaucous like *E. albens*, and has the calyx-tube shorter and the operculum longer than in *E. Bowmani*, which it agrees with in other respects. The other from Mount Elliot, *Fitzalan*, in flower, only differs from *E. Bowmani* in the upper umbels almost paniculate, in the more distinct pedicels and in the operculum rather shorter and broader.

38. ***E. siderophloia*, Benth.** A tall tree, with a hard, persistent, rough, and furrowed bark (*F. Mueller* and others). Leaves ovate-lanceolate or lanceolate, much acuminate, straight or more frequently falcate, about 3 to 6 in. long, often rather thick, with numerous fine diverging veins, the intramarginal one close to the edge. Peduncles axillary or in terminal corymbose panicles, more or less angular, each with about 6 to 12 flowers, on distinct angular pedicels. Calyx-tube shortly turbinate, about 2 lines diameter. Operculum conical or acuminate, rather longer than the calyx-tube in the ordinary form. Stamens 2 to 3 lines long, all perfect, inflected in the bud; anthers very small and nearly globular, the cells very short, opening at first in oblong slits, extending at length to the base or sometimes almost confluent. Ovary convex or conical in the centre. Fruit globular-truncate or obovoid, 3 to 4 lines diameter, not at all or scarcely contracted at the orifice, the rim slightly prominent, the capsule not much or sometimes scarcely sunk, the valves often protruding.—*E. persicifolia*, DC. Prod. iii. 217, and F. Muell. Fragm. ii. 61 (in part only), not of Lodd.

Queensland. Moreton Bay, "Iron-bark," *A. Cunningham*, *Leichhardt*, and others.
N. S. Wales. Port Jackson, "Iron-bark," *R. Brown*, and others; "Iron-bark" and "She Iron-bark," *Woolts*; Hastings and Richmond rivers, "Iron-bark," *Beckler*, *C. Moore*.

Var. (?) *rostrata*. Operculum $\frac{1}{4}$ to $\frac{1}{2}$ in. long; capsule-valves more prominent.—Port Jackson, "Iron-bark," *R. Brown*, *Caley*; "Greater Iron-bark," *Backhouse*; "Large-leaved Iron-bark," *Woolts*.

This species is evidently allied on the one hand to *E. albens*, and on the other to *E. crebra* and other Iron-barks. When the operculum is short, specimens in bud only are much like those of the Black-butt, *E. pilularis*, with which they appear to have been confounded both by De Candolle and F. Mueller, although distinguished by all collectors; when the flowers are open the anthers give a ready character, and the venation of the leaves is somewhat different. The rostrate variety, when in young bud, resembles *E. resinifera*, and even *E. tereticornis*, but the venation, and still more the anthers, distinguish it.

E. fibrosa, F. Muell. in Journ. Linn. Soc. iii. 87, from the Brisbane, is only known from specimens in young bud, in which state I am unable to distinguish them from the var. *rostrata* of *E. siderophloia*. F. Mueller, however, designates it as a Stringy-bark. It may therefore prove to be distinct.

39. ***E. melanophloia*, F. Muell. in Journ. Linn. Soc. iii. 93.** A small tree with a blackish persistent deeply-furrowed bark (*F. Mueller*), the foliage more or less glaucous or mealy-white. Leaves sessile, opposite, from cordate-ovate or orbicular to ovate-lanceolate, obtuse or acute. Peduncles short, terete or nearly so, 3- to 6-flowered, axillary or several in a short terminal corymb. Buds tapering into a pedicel shorter than the calyx-tube or almost sessile. Calyx-tube slightly angular, about 2 lines long or rather more, and as much in diameter. Operculum obtusely conical, shorter than the calyx-tube. Stamens 2 to 3 lines long, inflected in the bud; anthers very small and globular, but the cells parallel and distinct. Fruit pear-shaped or glo-

bular-truncate, 2 to nearly 3 lines diameter, more or less contracted at the orifice, the rim thin, the capsule nearly on a level with it and the valves slightly protruding, or more sunk with the valves included.

Queensland. Dawson, Gilbert, and Burnett rivers, *F. Mueller*; Moreton Bay, "Silver-leaved Iron-bark," *C. Moore*; summit of the Leichhardt Range, "Iron-bark," *Bowman*.

N. S. Wales. On the Narran, *Mitchell*; also n. 6 of the N. S. Wales woods of the Paris Exhibition, 1855, *C. Moore*; Cassilis, "Iron bark," *Leichhardt*.

The species is very nearly allied to *E. crebra* and may prove to be an opposite-leaved state of the form described as the "Mackenzie river Box-tree." It sometimes resembles *E. cinerea*, but differs in the bark, the stamens, and the fruit.

40. ***E. drepanophylla*, *F. Muell. Herb.*** A tree, usually low and stunted, the bark dark-grey and ribbed (*Dallachy*). Leaves long-lanceolate, often exceeding 6 in. and usually falcate, acuminate, with numerous fine parallel and very diverging veins, often scarcely conspicuous, the intra-marginal one close to or very near the edge. Umbels 3- to 6-flowered, usually 3 or 4 together in short axillary or terminal panicles or the lower ones solitary, the peduncles short and terete or nearly so. Calyx-tube obconical, nearly 2 lines long, tapering into a short thick pedicel. Operculum conical or obtuse, usually about as long as the calyx-tube. Stamens about 2 lines long, inflected in the bud; anthers very small, nearly globular, with distinct parallel cells. Fruit subglobose-truncate, about 4 lines diameter, slightly contracted at the orifice, the rim rather thin, the capsule somewhat sunk, but convex, so that the valves often slightly protrude.

N. Australia. N.W. coast, *A. Cunningham*.

Queensland. E. coast, *A. Cunningham*; Keppel Bay and Shoalwater Bay, *R. Brown*; Burdekin Expedition, *Fitzalan*; Port Denison, "Iron-bark tree," *Fitzalan*, *Dallachy*; Bowen river, "Ironbark," *Bowman*.

The species differs from *E. crebra* chiefly in the large flowers and in the larger, harder, and more globular fruit. From *E. leptophleba* it is chiefly distinguished by the leaves not so thick with more oblique veins. It is not impossible, however, that *E. melanophloia*, *drepanophylla*, *trachyphloia*, *leptophleba*, and *crebra*, all of them Iron-barks, may be but forms of one species.

41. ***E. trachyphloia*, *F. Muell. in Journ. Linn. Soc.* iii. 90.** A moderate-sized tree, with a dark grey rugged bark, persistent. Leaves long-lanceolate, often falcate, 4 to 6 in. long, with very numerous fine parallel almost transverse veins, the marginal one close to or very near the edge. Flowers not seen. Fruiting-umbels several together in terminal panicles or in the upper axils, each with 3 to 6 pedicellate fruits. Fruit ovoid-truncate, contracted towards the orifice, about 3 lines long, the rim thin, the capsule deeply sunk.

Queensland. Burnett river, *F. Mueller*. The specimens are in fruit only, and the affinities of the species are therefore very doubtful.

42. ***E. leptophleba*, *F. Muell. in Journ. Linn. Soc.* iii. 86.** A moderate-sized or large tree, with a dark persistent rugged bark, of which only fragmentary fruiting specimens have been preserved. These appear to me to differ but slightly from *E. crebra*, in the leaves rather thicker and broader, and in the fruits much larger, attaining 4 lines diameter or rather more.

Queensland. Gilbert river, *F. Mueller*.

43. ***E. crebra*, *F. Muell. in Journ. Linn. Soc.* iii. 87.** A small middle-

sized or sometimes a large tree, with a hard blackish rough persistent bark (*F. Mueller* and others). Leaves oblong-lanceolate or linear, straight or more frequently falcate, obtuse, mucronate-acute or acuminate, attaining 4 to 6 in. long, rather thick and glaucous or yellowish when dry in the northern specimens, thinner in the subtropical ones, with numerous very diverging fine parallel veins, the intramarginal one very near or close to the edge. Peduncles short, terete or nearly so, each with about 3 to 6 small flowers on short but distinct pedicels; umbels usually 3 or 4 together in short panicles either terminal or axillary, or rarely the lower ones solitary in the axils. Calyx-tube turbinate, about 1 line diameter. Operculum conical or hemispherical, about as long as the calyx-tube. Stamens 1 to 2 lines long, all perfect, inflexed in the bud; anthers very small and globular, like those of the *Porantheræ*, but the cells distinct and opening longitudinally to the base. Ovary flat-topped or slightly convex in the centre. Fruit obovoid-truncate, not 2 lines in diameter, somewhat contracted at the orifice and often shortly attenuate at the base, the rim narrow, the capsule more or less sunk but the tips of the valves often protruding when open.—*Metrosideros salicifolia*, β , Soland. in Gærtn. Fruct. i. 171. t. 34.

N. Australia. Between the Flinders and Lynd rivers, Gulf of Carpentaria, "Iron-bark tree," *F. Mueller*, including the fruiting specimens of *E. parviflora*, *F. Muell.*, referred to in Journ. Linn. Soc. iii. 90.

Queensland. From the Burdekin to Moreton Bay, often forming large forests, *F. Mueller*; Rockhampton, *Dallachy*, all under the name of "Iron-bark."

N. S. Wales. "Iron-bark," from Smithfield, *Woolfs*; Hastings river, *Beckler*; New England, *C. Stuart*; also in *Leichhardt's* collection, all under the name of "Iron-bark."

In flower, this species, especially in the thicker-leaved specimens, is sometimes difficult to distinguish from *E. brachypoda*; the leaves are generally but not always thinner with more oblique veins, and the flowers not so glaucous with the calyx less open; the fruit is, however, very differently shaped. It is very possible, however, that *E. melanophloia*, *drepanophylla*, *trachyphloia*, and *leptophleba*, which all differ only in the size of the flowers and fruit, and very slightly in the shape of the fruit, may when more fully known prove to be varieties of *E. crebra*, as well as the following forms:—

1. "Box-tree" of the Mackenzie river, *Leichhardt*, also on the Suttor river, *Bowman*, described by both as having the bark persistent and fissured. The specimens are somewhat glaucous, the leaves rather thin and broad and often obtuse. The flowers quite those of *E. crebra*, the fruit not seen. This is very probably an alternate-leaved state of *E. melanophloia*.

2. "Gum-topped Box," from Suttor river, *Bowman*, described as having the bark furrowed and persistent on the trunk, coming off in layers on the branches. Flowers of *E. crebra*. Fruits of the same shape but rather larger, much smaller, however, than in *E. drepanophylla*.

3. Specimens from New England, *C. Stuart*, described as having the bark white, separating in thin strips, the colour of the specimens not at all glaucous, and the inflorescence rather less compound, but the shape of the leaves, their venation and the flowers and fruits precisely those of *E. crebra*. To this form appear to belong also Sieber's specimens of *E. gracilis*, Pl. Exs. n. 476, referred by De Candoille to *E. hæmastoma*, but very different from Smith's plant of that name. They are in young bud and in fruit.

4. "Gum-tree," from the Brisbane, *Leichhardt*, with small globular fruits much contracted at the orifice, but no flowers; the leaves those of the common Moreton-Bay *E. crebra*.

5. A specimen from the dividing range towards the Gloucester, *Leichhardt*, with the same foliage, with young buds like those of *E. crebra*, but with very small globular-truncate fruits, scarcely contracted at the orifice.

From *E. amygdalina*, with which fruiting specimens have sometimes been confounded, as

well as from *E. bicolor* and its allies, *E. crebra* is readily distinguished both by the venation and the anthers.

44. **E. brachypoda**, *Turcz. in Bull. Mosc.* 1849, ii. 21. A tall shrub or small or moderate-sized tree, the bark varying from smooth and whitish to dark and rugged, persistent or shed in large patches (*Oldfield*), dark and rough on the trunk, smooth whitish and deciduous on the branches (*F. Mueller*). Leaves from ovate obtuse and under 2 in. to long-lanceolate obtuse acute or acuminate and attaining 6 to 8 in., more or less pale or glaucous, with numerous very fine parallel almost transverse veins, scarcely conspicuous when the leaf is thick, the marginal one near or close to the edge. Peduncles short, terete or nearly so, each with about 3 to 6 or sometimes more small flowers; umbels usually 3 or 4 together in short panicles either terminal or in the upper axils, or rarely the lower ones solitary and axillary. Calyx short broad and open, 1 to 1½ lines diameter. Operculum conical or obtuse, not longer than the calyx-tube. Stamens 1 to 2 lines long, inflected in the bud; anthers very small, globular, with distinct parallel cells. Ovary convex in the centre. Fruit almost hemispherical, rarely 2 lines diameter, the orifice open or almost dilated, the rim narrow, the capsule slightly sunk, but very convex in the centre, the valves protruding when open.—*E. brevifolia*, *F. Muell. in Journ. Linn. Soc.* iii. 84; *E. microtheca*, *F. Muell. in Journ. Linn. Soc.* iii. 87.

N. Australia. N.W. coast, *A. Cunningham*; table land of the upper Victoria river, "Box-tree," also in the scrub between Flinders and Albert rivers, Gulf of Carpentaria, *F. Mueller. Macdonnell Ranges, McDouall Stuart's Expedition.*

N. S. Wales. Between the Darling river and Barrier range, *Victorian Expedition.*

S. Australia. Cooper's Creek, *Howitt's Expedition.*

W. Australia, *Drummond, 4th Coll. n. 73.* Wet places near the Murchison river, among flooded gums, called "Colaille," *Oldfield*, who remarks on the variability of the bark, but there appears to be some confusion in his notes.

With the habit and inflorescence of *E. crebra*, this species differs from all others of the group in the very open fruit with exerted valves.

45. **E. brachyandra**, *F. Muell. in Journ. Linn. Soc.* iii. 97. A tall shrub or small tree. Leaves ovate or oblong, on long petioles, very obtuse, 2 to 4 in. long, thick with numerous parallel very diverging veins, fine but not very close. Flowers not seen. Umbels several together in a short panicle. Calyx after flowering very small, ovoid-globose, with a few very short stamens with minute globose anthers remaining about the orifice. Fruit urceolate-globose, scarcely more than 1 line long, the rim thin, the capsule sunk.

N. Australia. Rocky declivities of the Upper Victoria river, *F. Mueller.* The specimens preserved are very fragmentary.

SERIES V. NORMALES.—Stamens all perfect; anthers oblong-ovate or nearly globose, the cells perfectly distinct, parallel, and opening longitudinally, either contiguous with the connective-gland behind them or back to back with the connective between them.

SUBSERIES I. SUBSESSILES.—Flowers axillary or lateral, usually large, solitary or 2 or 3 together, sessile or nearly so on the stem, or on an exceedingly short terete or angular peduncle.

46. ***E. macrocarpa***, *Hook. Ic. Pl. t.* 405 to 407. A stout shrub of 6 to 10 ft., usually more or less mealy-white. Leaves opposite, sessile, broadly cordate-ovate, acute or obtuse, often 6 in. long, or even more, very thick and rigid. Flowers very large, solitary on very short thick axillary peduncles. Calyx-tube broadly hemispherical, hard and woody, smooth or obscurely ribbed, about $1\frac{1}{2}$ in. diameter. Operculum thick and hard, broadly conical or slightly acuminate, about twice as long as the calyx-tube. Stamens about 1 in. long, connivent and inflected at the end, their insertion raised to about 2 lines above the edge of the calyx by the thick edge of the disk, which is also often slightly raised within the stamens in a ring round the ovary; anthers ovate or oblong with parallel distinct cells. Fruit depressed-hemispherical, 2 to 3 in. diameter or even more, the very broad disk forming a raised rim, and the capsule or at least the broad valves protruding still farther in the centre.—*Bot. Mag. t.* 4333; *Pact. Mag. Bot. xv.* 29. with a fig.; *Schau. in Pl. Preiss. i.* 132; *F. Muell. Fragm. ii.* 41.

W. Australia. Forest bordering the Quangen plains, S. of Swan River, *Drummond, n.* 13, *Preiss, n.* 235. A specimen of *Labillardière's*, without flower or fruit, from the Maria Island, on the S. coast, appears to be the same species.

47. ***E. cordata***, *Labill. Pl. Nov. Holl. ii.* 13. *t.* 152. A small tree, the bark not described, the foliage usually glaucous or mealy-white. Leaves opposite, sessile, cordate, broadly ovate or orbicular, more or less distinctly crenate, mostly under 3 in. long. Peduncles axillary, very short and thick, terete or angular, each with 3 rather large sessile flowers. Calyx broadly campanulate, obtuse at the base, smooth, usually about 4 lines diameter. Operculum depressed-hemispherical, obtuse or umbonate, much shorter than the calyx-tube. Stamens 3 to 4 lines long, inflected in the bud; anthers ovate-oblong, with distinct parallel cells. Fruit globular-truncate, thick and hard, often $\frac{1}{2}$ in. diameter, not contracted at the orifice, the rim slightly projecting, the capsule somewhat sunk, the valves rarely protruding when open.—*DC. Prod. iii.* 221 (in part); *Hook. f. Fl. Tasm. i.* 132.

Tasmania. Recherche Bay and Huon River, *Labillardière, J. D. Hooker*. Oldfield expressed an opinion that this might be the young tree of *E. obliqua*, the flowers, however, as well as the fruit, and especially the anthers, are far too dissimilar to admit of the approximation of the two species without more conclusive evidence. Like *E. pulverulenta*, it appears to be much more nearly allied to *E. cosmophylla*.

48. ***E. pulverulenta***, *Sims, Bot. Mag. t.* 2087. A small tree, the bark not described, the foliage more or less glaucous or mealy-white. Leaves sessile, opposite, cordate, orbicular or broadly ovate, obtuse or almost acute, always quite entire. Peduncles axillary, very short terete or angular, each with 3 flowers not large and sessile or nearly so. Calyx-tube broadly turbinate, tapering at the base, about 3 lines diameter. Operculum obtusely conical or shortly acuminate, about as long as the calyx-tube. Stamens 3 to 4 lines long, inflected in the bud; anthers small but ovate, with distinct parallel cells. Fruit subglobose-truncate, not contracted at the orifice, usually about 4 lines diameter, the rim thick and convex, the capsule scarcely depressed, the valves slightly protruding.—*DC. Prod. iii.* 221; *Colla, Hort. Ripul. App. t.* 1; *E. pulviger*, *A. Cunn. in Field, N. S. Wales, 350*; *E. cordata*, *Lodd. Bot. Cab. t.* 328, not of *Labill.*

N. S. Wales. Near Cox's River, *A. Cunningham*; Argyle county, *Backhouse*; Ber-rima, "Argyle Apple," *Woolfs*. F. Mueller (Fragm. ii. 70) considers this to be the same as his *E. cinerea*, but, as far as our specimens go, it appears to differ in the foliage, in the larger sessile flowers, and in the larger thicker fruit with a very prominent thick rim.

49. **E. globulus**, *Labill. Voy. i. 153. t. 13, and Pl. Nov. Holl. ii. 121*. A lofty tree, sometimes exceeding 200 ft., but in many situations flowering when not above 10 ft. high, the young shoots and foliage often glaucous-white, the bark somewhat fibrous but deciduous, leaving the inner bark on the trunk smooth (*F. Mueller*). Leaves of the young tree opposite sessile and cordate, of the full-grown tree lanceolate or ovate-lanceolate, acuminate, falcate, often $\frac{1}{2}$ to 1 ft. long, the veins rather conspicuous, oblique and anastomosing, the intramarginal one at a distance from the edge. Flowers large, axillary, solitary or 2 or 3 together closely sessile on the stem or on a peduncle not longer than thick. Calyx-tube broadly turbinate, thick, woody, and replete with oil-receptacles, more or less ribbed and rugose or warty or rarely smooth, $\frac{1}{2}$ to $\frac{3}{4}$ in. diameter, the border prominent and the 4 teeth sometimes conspicuous. Operculum thick, hard and warty, depressed-hemispherical with an umbonate or conical centre, shorter than the calyx-tube. Stamens above $\frac{1}{2}$ in. long, inflected in the bud, raised above the calyx by the thick edge of the disk; anthers ovate, with parallel cells. Ovary as long as the calyx, slightly convex. Fruit semiglobular, $\frac{3}{4}$ to 1 in. diameter, the broad flat-topped disk or rim projecting above the calyx, the capsule nearly level with it, the valves flat, not protruding.—DC. Prod. iii. 220; Hook. f. Fl. Tasm. i. 133; F. Muell. Fragn. ii. 68; Pl. Vict. Suppl. t. 16.

Victoria. Valleys and moist declivities of wooded mountains from Apollo Bay to beyond Wilson's Promontory, extending here and there gregariously to the Buffalo range, *F. Mueller*.

Tasmania. S. parts of the island from 40 miles N. of Hobarton to the extreme south, "Blue Gum," *J. D. Hooker*.

Most of the Victorian specimens have smaller fruits and flowers, and the fruit more convex than those from Tasmania.

50. **E. alpina**, *Lindl. in Mitch. Three Exped. ii. 175*. A rigid scrubby bush of several feet, the young shoots viscid. Leaves mostly broad and very obtuse, orbicular ovate or oblong, straight or oblique at the base, 2 to 3 in. long, very thick, the veins not numerous and oblique. Flowers rather large, solitary or 2 or 3 together, axillary or lateral, closely sessile on the stem by their broad base, but not seen open. Buds irregularly globular, hard woody and rugose as in *E. globulus*, 4 to 5 lines diameter. Operculum very thick, hemispherical, nearly as long as the calyx-tube. Stamens much inflected in the bud; anthers ovate, with distinct parallel cells. Ovary shorter than the calyx, convex in the centre. Fruit very hard and woody, depressed-globular, $\frac{3}{4}$ to 1 in. diameter, the broad rim convex, the capsule not at all or scarcely sunk, the short valves protruding.

Victoria. Summit of Mount William, *Mitchell, F. Mueller*.

51. **E. cosmophylla**, *F. Muell. in Trans. Vict. Inst. 32*. A tall shrub or small tree, with a smooth ash-coloured bark (*F. Mueller*). Leaves ovate ovate-lanceolate or lanceolate, acute or acuminate, 3 to 5 in. long, very thick and rigid, the veins diverging and much reticulate, the intramarginal one at

a distance from the edge. Peduncles axillary or lateral, short and thick, sometimes scarcely any, each with 3 rather large flowers, sessile or the central one shortly pedicellate. Calyx-tube broad and short, thick and hard, about 5 lines diameter, obtuse at the base. Operculum hard, acuminate, scarcely shorter than the calyx-tube. Stamens 4 to 6 lines long, inflected in the bud; anthers rather small but ovate, with distinct parallel cells. Ovary flat-topped or slightly convex in the centre. Fruit subglobose-truncate, not contracted at the orifice, hard and smooth, 7 to 8 lines diameter, the rim thick and slightly convex, the capsule sunk, the valves not protruding.—Miq. in Ned. Kruidk. Arch. iv. 134.

S. Australia. Bugle and Lofty Ranges, *F. Mueller*; Kangaroo island, *Waterhouse*; Encounter Bay, *Whittaker*.

SUBSERIES II. RECURVÆ.—Flowers axillary or lateral, often large, usually 3 or rarely 5 together, pedicellate on a recurved terete peduncle. Calyx-tube turbinate or urceolate. Leaves alternate, thick.

52. **E. pyriformis**, *Turcz. in Bull. Mosc.* 1849, ii. 22. A shrub attaining 8 to 12 ft. Leaves ovate-lanceolate or lanceolate, acute or acuminate, rarely exceeding 3 in., very thick, the numerous fine oblique parallel veins rarely conspicuous, the intramarginal one at a distance from the edge. Flowers very large, red when fresh (*Oldfield*), 1 to 3 together on thick reflexed peduncles, sometimes 2 to 3 in. long sometimes very short, the pedicels from $\frac{1}{2}$ to 1 in. long. Calyx-tube turbinate or obconical, more or less prominently 2- to 4-ribbed or almost winged, $\frac{3}{4}$ to nearly 1 in. long and as much in diameter at the top, tapering into the thick pedicel. Operculum conical or hemispherical, usually shortly mucronate, about as long as the calyx-tube. Stamens often $\frac{3}{4}$ in. long or rather more, inflected in the bud; anthers ovate, with distinct parallel cells. Disk very broad, forming within the stamens a thick prominent ring round the depressed top of the ovary. Fruit almost hemispherical, very hard and woody, about 2 in. diameter, the ring formed by the disk remaining very prominent round the somewhat sunk convex-topped capsule, the valves not protruding beyond the ring.—*E. pruinosa*, *Turcz. in Bull. Mosc.* 1849, ii. 23, not of *Schau.*; *E. erythrocalyx*, *F. Muell. Fragm.* ii. 32.

W. Australia, *Drummond*, n. 58, 61, 4th Coll. n. 69, 70; *Gilbert*, n. 256. Sandy plains between Port Gregory and Murchison river, *Oldfield*.

53. **E. longifolia**, *Link and Otto, Ic. Pl. Sel.* 97. t. 45. A tree with a rough fibrous persistent or partially deciduous bark (*F. Mueller*), somewhat smooth or fibrous and wrinkled according to the age of the tree (*Woolfs*). Leaves lanceolate, usually long and falcate, often exceeding 6 in., the veins fine and divergent but rather distant, the intramarginal one not far from the edge. Peduncles axillary or lateral, usually recurved with 3 or very rarely 4 rather large pedicellate flowers. Calyx-tube turbinate, thick and hard, sometimes slightly angular, 4 to 5 lines long and as much in diameter. Operculum thick and hard, conical, about as long as the calyx-tube or sometimes longer. Stamens fully $\frac{1}{2}$ in. long, inflected in the bud; anthers ovate-oblong, with distinct parallel cells. Ovary rather shorter than the calyx, convex in the

centre. Fruit somewhat pear-shaped, truncate, nearly $\frac{3}{4}$ in. long, straight or scarcely contracted at the orifice, the broad rim prominent, the capsule slightly sunk but the valves sometimes protruding, or the whole fruit is shorter with a flat rim.—DC. Prod. iii. 216; *E. Woollsii*, F. Muell. Fragn. ii. 50.

N. S. Wales. Port Jackson, "Bastard Box," *R. Brown*, *Caley*; near Paramatta, "Woolly-butt," *Woolls*; Twofold Bay, *F. Mueller*.

Victoria. Eastern extremity of Gipps' Land, *F. Mueller*.

54. **E. conoidea**, *Benth.* Leaves narrow-oblong or lanceolate, mostly obtuse and under 3 in. long, thick and shining, the very oblique veins scarcely conspicuous, the intramarginal one at a distance from the edge. Peduncles axillary or lateral, usually recurved, terete or slightly angular, each with 3 to 5 rather large pedicellate flowers. Calyx-tube obconical, more or less distinctly ribbed, 3 lines long or rather more, tapering into the pedicel. Operculum broad and conical, smooth or ribbed, not thick, nearly twice as long as the calyx-tube. Stamens nearly $\frac{1}{2}$ in. long, inflected in the bud, raised by the thick disk $\frac{1}{2}$ to 1 line above the border of the calyx; anthers oblong, with parallel distinct cells. Fruit turbinate-truncate, 4 to 6 lines long and as much in diameter on the top, the rim raised above the calyx-border, broad and flat or concave, the capsule level with it or more or less depressed, the short broad valves often protruding when open.

W. Australia. *Drummond*, 5th Coll. n. 37.

Var. *marginata*. Border of the calyx expanded into a prominent horizontal or reflexed ring.—*Drummond*, 3rd Coll. n. 56.

55. **E. urnigera**, *Hook. f. in Hook. Lond. Journ.* vi. 477, and *Fl. Tasm.* i. 134. t. 56. A tree usually small, with spreading branches and drooping branchlets often glaucous (*Hooker*), attaining sometimes 50 ft. (*Oldfield*), with a pale brown smooth bark (*R. Brown*). Leaves ovate oval-oblong or lanceolate, obtuse, 2 to 4 in. long, straight or rarely oblique, very thick so as to conceal the oblique rather regular veins. Flowers 3 together or rarely solitary, pedicellate on rather long usually recurved terete pedicels. Calyx-tube more or less urceolate, contracted under the somewhat dilated orifice, rather above 3 lines long and as much in diameter. Operculum short, obtuse or shortly conical. Stamens fully 3 lines long, inflected in the bud; anthers with distinct parallel cells. Fruit hard, oblong-ovoid or nearly globose but always more or less urceolate, the rim narrow, slightly prominent, the capsule much sunk.

Tasmania. Table mountain, *R. Brown*; alpine districts, not uncommon, *J. D. Hooker*.

56. **E. cæsia**, *Benth.* Branches rather slender, pale glaucous or nearly white as well as the foliage and fruits. Leaves ovate-lanceolate or lanceolate, acuminate, rarely above 3 in. long, rather thick, the veins fine and very oblique but numerous. Flowers unknown. Fruiting peduncles axillary or lateral, recurved, terete, above 1 in. long with scars of 3 flowers. Pedicels terete, $\frac{1}{2}$ in. long or more. Fruit ovoid, truncate, $\frac{3}{4}$ in. diameter and nearly 1 in. long, slightly contracted towards the orifice, the rim very broad and the concave but with a thin edge, the capsule deeply sunk, the points of the valves protruding from the centre of the disk but shorter than the border of the fruit.

W. Australia, *Drummond*, 5th Coll. Suppl. n. 36.

SUBSERIES III. ROBUSTÆ.—Peduncles axillary or lateral or very rarely the upper ones in a terminal corymb, usually flattened, each with several or rarely only one large or moderate-sized flowers, sessile or tapering into thick pedicels. Leaves usually thick and alternate or in *E. Preissiana* often opposite. Rim of the fruit often concave with a sunk capsule except in the last four species.

57. **E. tetraptera**, *Turcz. in Bull. Mosc.* 1849, ii. 22. A shrub or small tree (rarely above 10 ft., *Maxwell*), the branches nearly terete or very prominently 4-angled almost winged. Leaves oblong-lanceolate, more or less falcate, mostly under 6 in. long, but in luxuriant branches attaining 10 in. or even more, very thick and rigid, shining above, the veins divergent and parallel but scarcely prominent, the intramarginal one not close to the edge. Peduncles axillary or lateral, recurved, very broad and flat but thick and undulate, bearing each a single very large sessile flower. Calyx at least $1\frac{1}{2}$ in. long and $1\frac{1}{4}$ in. diameter, very prominently 4-angled, the prominent margin forming a border or cup round the operculum and the 4 teeth sometimes prominent. Operculum pyramidal, hard, 4-angled, not half so long as the calyx. Stamens white or red, inflected in the bud, not above $\frac{1}{2}$ in. long; anthers oblong with parallel distinct cells. Ovary short, somewhat convex in the centre. Fruit prominently angled or 4-winged like the calyx or 2-winged at the base like the peduncle and often not much enlarged, but sometimes attaining 2 or even 3 in.; the rim concave, the capsule rather deeply sunk.—*F. Muell. Fragm.* ii. 34.

W. Australia. Between Swan River and King George's Sound, *Drummond*, 4th Coll. n. 71, 5th Coll. n. 189; *Harvey*; Fitzgerald river and Granite hills N. of Cape Le Grand, *Maxwell*.

58. **E. miniata**, *A. Cunn.*; *Schau. in Walp. Rep.* ii. 925. A moderate-sized or large tree, the bark fibrous and persistent but readily separable in flakes (*F. Mueller*), the young shoots sometimes glaucous or mealy white. Leaves ovate-lanceolate or lanceolate, acuminate, mostly 4 to 6 in. long, the veins diverging and parallel but not very close, the intramarginal one very near the edge. Peduncles axillary or lateral, very thick and broad, more or less flattened, $\frac{1}{2}$ to 1 in. long, with about 5 to 7 rather large closely sessile flowers. Calyx-tube thick, turbinate or almost urceolate, about 6 lines long, more or less prominently 8-angled. Operculum hemispherical, obtuse, thick, shorter than the calyx-tube. Stamens richly coloured, nearly $\frac{1}{2}$ in. long, inflected in the bud; anthers oblong with distinct parallel cells. Ovary short, flat-topped. Fruit ovoid or urceolate, very thick and hard, more or less prominently ribbed, 1 to nearly 2 in. long, the rim rather thick, the capsule deeply sunk.—*E. aurantiaca*, *F. Muell. in Journ. Linn. Soc.* iii. 91.

N. Australia. Hunter's River, York Sound, and Greville island, N.W. Coast, *A. Cunningham*; islands of the Gulf of Carpentaria, *R. Brown*; sandy plains and rocky tablelands round the Gulf of Carpentaria, *F. Mueller*; between the Lynd and Port Essington, *Leichhardt*.

59. **E. robusta**, *Sm. Bot. Nov. Holl.* 40. t. 13, and in *Trans. Linn. Soc.* iii. 283. A moderate-sized tree, with a rough furrowed bark. Leaves ovate-

lanceolate, nearly straight or the upper ones narrower and falcate, 4 to 6 in. long or sometimes more, with numerous fine but prominent parallel veins almost transverse, the intramarginal one very near or close to the edge. Peduncles axillary or lateral, stout, angular or flattened, often 1 in. long, each with about 4 to 12 rather large flowers, on thick angular pedicels. Calyx-tube narrow-turbinate or slightly urceolate, 3 to 4 lines long, tapering into the pedicel. Operculum thick, obtusely acuminate, usually rather longer than the calyx-tube. Stamens 4 to 6 lines long, somewhat raised above the calyx-border by the annular margin of the disk; anthers ovoid-oblong, with distinct parallel cells. Ovary flat-topped or slightly conical in the centre. Fruit ovoid-oblong, truncate, smooth, contracted above the middle, about $\frac{1}{2}$ in. long or rather more, the rim thin and slightly prominent, the capsule much sunk.—DC. Prod. iii. 216; F. Muell. Fragm. ii. 43; *E. rostrata*, Cav. Ic. iv. 23. t. 342.

N. S. Wales. Port Jackson to the Blue Mountains, *R. Brown*, *Sieber*, n. 480, and *Fl. Maurit.* ii. 318, and others; "Swamp Mahogany" and "White Mahogany," *Woolfs*.

60. ***E. botryoides*, Sm.** in *Trans. Linn. Soc.* iii. 286. A tall handsome tree, with a rough furrowed persistent bark. Leaves ovate-lanceolate or lanceolate, acuminate, straight or rarely falcate, 4 to 6 in. long or sometimes more, with numerous fine very diverging parallel veins, the intramarginal one very near or close to the edge. Peduncles axillary or lateral, thick, angular or flat, bearing each about 4 to 10 rather large flowers, sessile or nearly so. Calyx-tube ovoid-turbinate, 2 to nearly 3 lines long. Operculum from very obtuse and much shorter than the calyx-tube to broadly conical and nearly as long as the calyx-tube. Stamens about 3 lines long, or rather more, inflected in the bud; anthers ovoid-oblong, with distinct parallel cells. Ovary convex in the centre. Fruit obovoid-oblong, 4 to 5 lines long when fully ripe, somewhat contracted at the orifice, the rim narrow, the capsule more or less sunk, flat or slightly convex in the centre, the valves not protruding.—DC. Prod. iii. 219; *C. platypodos*, Cav. Ic. iv. 23. t. 341.

Queensland. Brisbane, "Blue Gum," *M'Arthur*, n. 91, of *Paris Exhibition woods*.

N. S. Wales. Port Jackson, *R. Brown*, and others; Manly Beach, "Bastard Mahogany," and Baukham Hills, "Blue Gum" (the latter not seen in fruit, but apparently the same species), *Woolfs*.

Victoria. Snowy River, Cabbage-tree river, and towards the mouth of Broadrip river, "Bastard or Swamp Mahogany," *F. Mueller*.

Var. with the ovary more conical in the centre and the operculum shortly beaked, *Pater-son's River*, "Blue Gum," *Herb. R. Brown*.

61. ***E. gonicalyx*, F. Muell. Fragm.** ii. 48. A tree of moderate size, with the bark rough and persistent on the trunk, at least when the tree is large, deciduous in the upper part (*Oldfield*), usually deciduous, but sometimes persistent (*F. Mueller*). Leaves ovate-lanceolate to lanceolate, usually falcate and often above 6 in. long, usually pale coloured, with the pellucid dots rather conspicuous, the veins oblique and numerous, but not close, the intramarginal one at a distance from the edge. Peduncles short, thick and flat, each with 3 to 7 flowers, sessile or tapering into short thick pedicels. Calyx-tube 3 to 4 lines long, about $2\frac{1}{2}$ lines diameter, with 2 to 4 prominent angles or almost terete. Operculum conical or hemispherical, much shorter

than the calyx-tube. Stamens about 3 lines long, inflected in the bud; anthers ovate, with distinct parallel cells. Ovary conical in the centre and tapering into the style. Fruit ovoid-truncate, about 4 lines long and rather less in diameter, the rim rather thin, the capsule more or less sunk, but the points of the valves, when open, sometimes on a level with the rim, or when the fruit is not so well ripened more or less protruding.—Miq. in Ned. Kruidk. Arch. iv. 134; *E. elæophora*, F. Muell. Fragn. iv. 52.

N. S. Wales. Twofold Bay, "Spotted Gum" and "White Gum," *Oldfield*.

Victoria. Scrubby stony hills of the Buffalo Range, sources of the Yarra and Barwan rivers, grassy hills on the Macalister river, especially near Mount Ligar, Sealer's Cove, etc., "Spotted Gum," *F. Mueller*.—Very near in flowers to some forms of *E. dumosa*, but with a very different foliage.

Var. *acuminata*. Flowers more distinctly pedicellate, the bud narrow, the operculum longer and more acuminate. Gipps' Land, *F. Mueller*.

Var. *pallens*. Specimens glaucous-white, as in *E. dealbata*. Mountains on Snowy River, *F. Mueller*.

62. ***E. dumosa*, A. Cunn.; Schau. in Walp. Rep. ii. 925.** A shrub or small tree, with a smooth whitish persistent bark. Leaves from oblong or almost ovate and obtuse, to lanceolate falcate and acuminate, under 4 in. and rarely above 3 in. long, very thick and smooth, the oblique parallel veins scarcely conspicuous. Peduncles axillary or lateral, terete or flattened, usually short, with 4 to 8 flowers closely sessile or on very short thick pedicels. Calyx-tube ovoid, almost cylindrical, thick and sometimes slightly angular, 2 to nearly 3 lines long. Operculum hemispherical and very obtuse or umbo-nate or shortly conical, shorter than the calyx-tube. Stamens about 2 lines long, inflected in the bud; anthers ovate, with distinct parallel cells. Ovary flat-topped. Fruit obovoid-truncate or almost oblong, usually about 3 lines long, not contracted at the orifice or very slightly so, the rim not very thick, the capsule more or less sunk.—*F. Muell. Fragn. ii. 59* (partly); *E. lamprocarpa*, *F. Muell.*; *Miq. in Ned. Kruidk. Arch. iv. 129*; *E. fruticetorum*, *F. Muell.*; *Miq. in Ned. Kruidk. Arch. iv. 131* (partly); *E. santalifolia*, *Miq. l. c. 133* (except the var. *firma*), not of *F. Muell.*

N. S. Wales. Blue Mountains, *Backhouse*; Euryalean scrub in the interior, *A. Cunningham*; Darling desert, *Victorian Expedition*.

Victoria. Mallee scrub, near Lake Baga, *F. Mueller*.

S. Australia. Heath, W. of Glenelg river, *Robertson*; Murray river, *Herrgott*; Gawler river, *Behr*.

Var. *conglobata*, *R. Brown*. Peduncles shorter than broad. Flowers closely sessile, the calyx-tube shorter than broad, angular, and operculum conical, as in *E. gonicalyx*, but leaves of *E. dumosa*.—Port Lincoln, *Wilhelmi*; S. coast, *R. Brown*.

Var. *scyphocalyx*, *F. Muell.* Leaves narrow. Flowers large. Operculum very obtuse, broader than the calyx. Peduncles very short and thick. This approaches in some measure *E. gomphocephala*.

W. Australia. Eyre's Relief, *Maxwell*. Another form, very much like this one, but with longer, not much flattened peduncles, and the fruit nearly $\frac{1}{2}$ in. long, in *Herb. R. Br.*, gathered in Baudin's Expedition on the Ile des Amiraux.

Var. *puncticulata*. Leaves copiously black-dotted. Flowers small.—W. Australia, from Gordon river, *Oldfield*, to Mount Barren Ranges, *Maxwell*.

Var. (?) *rhodophloia*. Bark salmon-coloured. Leaves black-dotted. Flowers rather small, the operculum conical or almost acuminate. Capsule on a level with the rim of the fruit. Possibly a distinct species.—W. Australia, Phillips Bluffs, near Eyre's Relief, *Maxwell*.

63. **E. incrassata**, *Labill. Pl. Nov. Holl.* ii. 12. *t.* 150. A shrub or small tree, attaining sometimes 25 ft., with a smooth bark, persistent or shedding in large patches (*Oldfield, Maxwell*): Leaves ovate ovate-lanceolate or lanceolate, obtuse or rarely acuminate, mostly under 4 in. long, very thick, with oblique usually inconspicuous veins. Peduncles axillary or lateral, short, thick, usually flat or much dilated upwards, bearing each 3 to 8 rather large sessile or shortly pedicellate flowers. Calyx-tube obovoid or turbinate, from under 4 to above 5 lines long, smooth in the original form, but ribbed in the more common varieties. Operculum thick, obtusely acuminate or rostrate, as long as or longer than the calyx-tube. Stamens often $\frac{1}{2}$ in. long, inflected in the bud; anthers ovate-oblong, with distinct parallel cells. Fruit thick, ovoid-cylindrical, from under $\frac{1}{2}$ in. to nearly 1 in. long, not at all or but slightly contracted at the orifice, the rim not very thick when the flowers are small, very broad and flat in some large-flowered forms, the capsule deeply sunk, but sometimes the valves terminating in long protruding points formed by the split base of the style.—*DC. Prod.* iii. 217.

W. Australia, *Labillardière, Drummond, 3rd Coll. n.* 65; scrubby undulating country N. of Stirling Range, *Maxwell*.

Var. *angulosa*. Calyx-tube and operculum more or less prominently angled or several-ribbed, but varying much in this respect as well as in the size of the flowers and fruits.—*E. angulosa*, *Schau. in Walp. Rep.* ii. 925; *E. cuspidata*, *Turcz. in Bull. Mosc.* 1849, ii. 21; *E. costata*, *F. Muell. in Trans. Vict. Inst.* 33; *Miq. in Ned. Kruidk. Arch.* iv. 136; *E. Muelleri*, *Miq. l. c.* 130 (a small-flowered form). The locality given by *Miquel*, "Madam Pepper-weath," is a mistaken reading for "in modum Pepper-menth," or like *Peppermint*.

N. S. Wales. Mallee scrub of the Murray desert to the Barrier Range, *Victorian Expedition*.

S. Australia. Various points of the S. coast, *R. Brown*; Kangaroo island, *Labillardière*; from the Murray to Spencer's and St. Vincent's Gulfs, *F. Mueller, Behr*, and others.

W. Australia. Sandy plains N. of Stirling Range, *Maxwell*; near the sea, King George's Sound, *R. Brown, A. Cunningham, Drummond, n.* 230, *4th Coll. n.* 75, and others; and eastward to Espérance Bay, Phillips Ranges, Moir's Inlet, Cape Le Grand, *Maxwell*.

F. Mueller, Fragm. ii. 59, is disposed to reduce this variety, and perhaps the whole species, to *E. dumosa*.

64. **E. gomphocephala**, *DC. Prod.* iii. 220, and *Mem. Myrt. t.* 11. A tree, of 40 to 50 ft., with a smooth or rough persistent bark, very dark on the Swan River, iron-grey on the Vasse (*Oldfield*). Leaves ovate-lanceolate to narrow-lanceolate, mostly falcate and acuminate, often exceeding 6 in., thick and shining, the fine rather numerous oblique veins scarcely conspicuous, except on old leaves. Peduncles axillary or lateral, thick and hard, broad and flat, $\frac{1}{2}$ to 1 in. long, each with 3 flowers, either sessile or on very short thick flat pedicels. Calyx-tube obovoid or somewhat urceolate, 4 to 5 lines long and nearly 4 lines diameter. Operculum globular, very thick and hard, broader than the calyx-tube, usually nearly $\frac{1}{2}$ in. diameter. Stamens exceedingly numerous, nearly 4 lines long, inflected in the bud; anthers oblong, with distinct parallel cells. Ovary convex in the centre. Fruit $\frac{3}{4}$ in. long, somewhat dilated at the orifice, the rim broad and convex, the capsule scarcely sunk, conical in the centre, the open valves protruding.—*F. Muell. Fragm.* ii. 36.

W. Australia. Géographe Bay, *Leschenault*; Swan River, *Oldfield, Harvey*; Vasse

river, and perhaps Marchison river (specimen imperfect), *Oldfield*; towards Cape Leeuwin, *Gregory*.

65. **E. grossa**, *F. Muell. Herb.* A stunted shrub (*Maxwell*). Leaves from ovate and obtuse to lanceolate and acute, very thick and shining, under 3 in. long, the veins oblique, rarely conspicuous, the intramarginal one at a distance from the edge. Peduncles axillary or lateral, often recurved, thick and much flattened, with usually 3 large sessile flowers. Calyx-tube turbinate, prominently ribbed, 4 to 5 lines long. Operculum oblong, very obtuse, thin and smooth as in the *Cornutæ*, as long as or rather shorter, perhaps sometimes longer than the calyx-tube. Stamens about $\frac{1}{2}$ in. long, inflected in the bud; anthers ovate-oblong, with parallel distinct cells. Ovary short, convex in the centre. Fruit not seen.

W. Australia. Phillips river and its tributaries, *Maxwell*. I feel uncertain as to the affinities of this species, the smooth cylindrical obtuse operculum is like that of some of the *Cornutæ*, but the stamens are much inflected in the bud, and the flowers are otherwise quite those of the larger forms of *E. incrassata*.

66. **E. vernicosa**, *Hook. f. in Hook. Lond. Journ.* vi. 478, and *Fl. Tasm.* i. 135. A low bushy shrub, not exceeding 4 ft. in exposed situations, growing perhaps to a small tree where more sheltered (*J. D. Hooker*). Leaves mostly ovate or almost orbicular or the upper ones oblong, obtuse or mucronate, rarely above 1 in. long, thick, smooth and shining so as to conceal the veins, which are rather oblique and distant. Peduncles exceedingly short, thick, and more or less flattened, each with 1 to 3 closely sessile flowers. Calyx-tube thick, about 2 lines long and as much in diameter. Operculum shorter than the calyx-tube and usually shortly acuminate. Stamens inflected in the bud (not seen fully expanded); anthers ovate, the cells closely contiguous, but parallel and distinct, at least in the bud. Ovary not much shorter than the calyx-tube. Fruit hard, ovoid-truncate or almost urceolate, about 3 lines diameter, slightly dilated at the orifice, the rim flat or slightly convex, the capsule somewhat sunk, but the valves protruding when open.

Tasmania. Summit of Mount Fatigue, *Milligan*, and of Mount Lapeyrouse, *Oldham*. The species is readily known by its small leaves. It is in some respects nearly allied to *E. viminalis*, in others to *E. dumosa*.

67. **E. megacarpa**, *F. Muell. Fragm.* ii. 70. A tree, the bark not described. Leaves lanceolate, falcate, mostly 4 to 6 in. long, thick and smooth, the veins irregular, oblique, fine, and scarcely conspicuous. Peduncles axillary or lateral, thick and flat, rather short, each bearing usually 2 sessile flowers. Calyx-tube broadly turbinate, smooth, under 6 lines long, the margin acutely prominent in the bud. Operculum shortly conical. Stamens about $\frac{1}{2}$ in. long, inflected in the bud; anthers ovate-oblong, with distinct parallel cells. Fruit depressed globular, thick and hard, $\frac{3}{4}$ to 1 in. diameter, the rim very convex and prominent, continuous with the thick, conical, obtuse, incurved and prominent valves of the capsule.

W. Australia. King George's Sound and to the eastward, *R. Brown, Drummond*, 3rd Coll. Suppl. n. 18; margin of Wilson's Inlet, *Maxwell*; near Augusta, *Gilbert*, n. 257. Specimens are also in F. Mueller's herbarium from a tree cultivated at Sydney as a "Blue Gum."

68. **E. Preissiana**, *Schau. in Pl. Preiss.* i. 131. A stout rigid shrub,

of 8 to 12 ft. Leaves mostly opposite, although petiolate, from broadly ovate to ovate-lanceolate, very obtuse or rarely acute, 3 to 5 in. long, very thick and rigid, the veins diverging and parallel but not close, the marginal one at a distance from the edge. Peduncles axillary or lateral, very thick and much dilated, sometimes almost winged, under 1 in. long, each with 3 large flowers, either sessile or tapering into a very short, thick, flattened pedicel. Calyx-tube broadly turbinate or almost hemispherical, very thick and smooth, 7 to 8 lines diameter. Operculum only slightly convex, not broader than the calyx-tube. Stamens 6 to 8 lines long, inflected in the bud; anthers ovate, with parallel distinct cells. Disk broad and concave, the ovary with as many protuberances in the centre as valves. Fruit very hard and shining, broadly turbinate or hemispherical, 1 to 1½ in. diameter, the top flat or concave, the rim fully 3 lines diameter, the capsule slightly depressed, the valves (4, 5, or rarely 6) usually flat.—Hook. Bot. Mag. t. 4266; F. Muell. Fragm. ii. 38; *E. plurilocularis*, F. Muell. Fragm. ii. 70.

W. Australia. From the Kalgan river to Cape Riche, *Preiss*, n. 239, *Drummond*, 3rd Coll. n. 63, *Oldfield*.

The fruit may be seen occasionally, apparently when not well grown, much less widened at the top, thus losing the characteristic form of the species. In some specimens from Salt River, *Maxwell*, the leaves are more acute and the capsule (not perfect) almost contracted at the orifice, but they appear to belong to the same species, having the broad flowering-calyx and flattened peduncle of the obtuse-leaved specimens. In a specimen sent by F. Mueller from a tree grown in the Melbourne Botanic Garden from W. Australian seeds, and named by him *E. pachypoda*, the leaves are acute as in *Maxwell*'s specimen, but the peduncle is very thick and scarcely flattened, bearing more than 3 flowers, with ovoid calyxes. The tree had not yet fruited, but it will probably not prove specifically distinct from *E. Preissiana*.

SUBSERIES IV. CORNUTÆ.—Peduncles axillary or lateral, several-, often many-flowered, flattened (except in *E. cornuta*). Flowers sessile or shortly pedicellate. Operculum long, smooth, and not thick. Stamens erect or flexuose in the bud, not inflected. Fruit turbinate, urceolate or obovoid, the capsule not much sunk. Leaves thick, with irregular oblique veins, often inconspicuous.

69. **E. Lehmanni**, *Preiss*, *Herb. according to Schau. in Pl. Preiss.* i. 127. A tall shrub or small tree, with a roughish reddish bark coming off in irregular sheets (*Oldfield*). Leaves from ovate to oblong or almost lanceolate, obtuse, under 3 in. long, very thick, the veins very oblique and rather distant, the intramarginal one at a distance from the edge. Flowers several, often 20 or more together in dense heads upon thick recurved peduncles 1 to 3 in. long, and sometimes much flattened, the receptacle forming a globose mass of ½ in. or more diameter, in which the calyx-tubes (usually 2 to 3 lines diameter) are more or less immersed. Operculum cylindrical, dilated at the base, obtuse, often 1½ in. long. Stamens 1½ to 2 in. long, erect in the bud as in *E. cornuta*; anthers oblong, parallel-celled. Ovary convex at the top. Fruits half immersed in the receptacle, about ½ in. diameter, the rim very narrow, the capsule not depressed, the exerted valves connivent into a cone, tapering into the persistent base of the style.—*Symphylomyrtus Lehmanni*, *Schau. in Pl. Preiss.* i. 127; *E. macrocera*, *Turcz. in Bull. Mosc.* 1849, ii. 20 (described apparently from an imperfect specimen).

W. Australia. S. coast to the east of King George's Sound, *R. Brown*; stony hills from Bald Island and Stirling range eastward to Cape Arid, *Oldfield*; *Maxwell*; *Preiss*, n. 227; *Drummond*, 4th Coll. n. 67, in most sets.

70. ***E. cornuta***, *Labill. Voy.* i. 403. t. 20. A tall shrub or small tree with a smooth bark (*Oldfield*), or more frequently a moderate-sized or tall tree with a bushy head, the bark brown or black, hard, rugged, persistent, half-fibrous or fibrous (*Oldfield*), or the bark smooth and falling off in pieces (*Maxwell*). Leaves lanceolate or ovate-lanceolate, mostly under 4 in. long, rather thick, the veins irregularly oblique, often more conspicuous than in the adjoining species, the intramarginal one at a distance from the edge. Peduncles axillary, terete or slightly compressed, each bearing 6 to 12 or even more flowers, sessile but not immersed in the receptacle. Calyx oblong-turbinate, about 3 lines long and rather less in diameter. Operculum 1 to 1½ in. long, more or less tapering upwards, but obtuse. Stamens erect or slightly flexuose in the bud, but not inflected; the outer ones often above 1 in. long; the inner ones much shorter; anthers oblong, parallel-celled. Ovary almost on a level with the calyx-rim, the top flat or at length slightly convex, the style thickened at the base. Fruit obovoid-truncate or shortly cylindrical, about 4 lines long, not contracted at the orifice, the rim narrow and scarcely distinct from the slightly convex summit of the fruit; valves when open raised and acuminate by the long often connivent points formed by the split and persistent base of the style. Cotyledons of the seeds very deeply lobed, almost 2-partite.—*DC. Prod.* iii. 216; *Schau.* in *Pl. Preiss.* i. 127; *F. Muell. Fragm.* ii. 39 (partly).

W. Australia. King George's Sound, *R. Brown*, and eastward to Cape Riche, *Labillardière*; *A. Cunningham*; *Drummond*, 2nd Coll. n. 83, 4th Coll. n. 68; and in some sets n. 67; *Preiss*, n. 238, and others; *Vasse river*, *Gilbert*, n. 270; "Yeit" of the colonists, *Oldfield*.—*F. Mueller* proposes to unite with this the *E. Lehmanni* as well as several of the following species. I have not ventured to do so at present, as amongst the numerous specimens examined from various sources, I have not yet met with intermediates connecting the different forms, especially as to the summit of the ovary and the fruit.

71. ***E. annulata***, *Benth.* A tall shrub with a smooth bark (*Maxwell*). Leaves narrow-lanceolate, acuminate, mostly under 4 in. long, thick and smooth with oblique veins usually very indistinct, the intramarginal one near the edge. Peduncles axillary or lateral, short, thick, flat, and almost as broad as long, each with about 6 to 12 sessile flowers. Calyx-tube turbinate-campanulate, about 3 lines diameter. Operculum 6 to 8 lines long, usually incurved and very obtuse or almost clavate at the end. Stamens straight as in *E. cornuta*, but apparently of a yellowish-white colour as in *E. macrandra*, the margin of the disk that bears them forming a raised inflexed ring about $\frac{3}{4}$ line broad; anthers oblong with parallel cells. Ovary conical at the top, tapering into the style. Fruit depressed-globose, 4 to 5 lines diameter, the convex rim protruding into a thick ring, quite distinct from the valves, which project much, tapering into long erect or connivent points formed by the persistent base of the style.

W. Australia. Salt River, *Maxwell*.

72. ***E. platypus***, *Hook. Ic. Pl.* t. 849. A tree attaining 30 ft., with a smooth bark (*Maxwell*). Leaves very broadly ovate or orbicular, often

coarsely crenate, mostly under 2 in. long, very thick, smooth, and shining, the oblique veins scarcely visible. Peduncles axillary, thick and hard but flat, and often $\frac{1}{4}$ to $\frac{1}{2}$ in. broad, erect or recurved, mostly above 1 in. long, each bearing about 3 to 7 flowers. Calyx-tube usually 3 to 4 lines long, thick but narrow-turbinate, smooth and nearly terete, or with 2, 3, or sometimes 4 more or less prominent ribs or angles, and generally tapering into a very short, thick, angular or flattened pedicel. Operculum tapering upwards, longer and oftener narrower than the calyx-tube. Stamens erect in the bud as in *E. cornuta*, the outer ones attaining 7 to 8 lines; anthers ovate-oblong, with parallel cells opening longitudinally. Ovary conical in the centre, with as many raised lines as cells. Fruit obovoid-truncate or turbinate, $\frac{1}{2}$ to nearly $\frac{3}{4}$ in. long and 4 to 7 lines diameter, slightly contracted at the orifice, the rim rather broad, convex; the capsule somewhat sunk, but the valves often acuminate by the split base of the style, with the points protruding.

W. Australia. From about 6 miles N. of the W. end of Stirling range, extending far away eastward beyond Phillips ranges, forming dense impenetrable thickets, "Maalok" of the natives, *Maxwell*; also *Drummond*, 5th Coll. n. 183 (given by *Maxwell*).

Var. *nutans*. Flowers and fruits larger, the ribs more prominent, one or two sometimes expanded into thick wings.—*E. nutans*, F. Muell. Fragm. iii. 152.—In the interior from Bremer's Inlet, forming dense thickets, *Maxwell*.

In R. Brown's collections are some specimens in very young bud and fruit from Goose Island Bay, apparently of a variety of this species, with leaves from ovate to ovate-lanceolate, but obtuse and under 2 in. long, as in the broad-leaved form. I have not seen the stamens.

73. ***E. macrandra*, F. Muell. Herb.** A shrub or small tree with a smooth bark (*Maxwell*). Leaves from ovate-lanceolate to narrow-lanceolate, rarely exceeding 4 in., very thick and smooth, the veins more numerous and more diverging than in *E. cornuta*, and the intramarginal one usually nearer the edge, but generally scarcely visible. Peduncles rigid and flattened, mostly $\frac{1}{2}$ to 1 in. long, with 8 to 16 or even more flowers, sessile or on very short pedicels. Calyx-tube obovoid-campanulate, usually $2\frac{1}{2}$ to 3 lines long and rather less in diameter, but in some specimens smaller. Operculum usually above 1 in. long. Stamens when dry yellowish, erect in the bud as in *E. cornuta*, the edge of the disk inflected; anthers oblong, with parallel cells. Ovary flat-topped, the style not thickened at the base. Fruit semi-ovoid, truncate, 3 to 4 lines diameter, or in some specimens rather smaller, the rim narrow, on a level with the calyx as well as the flat-topped capsule, the small valves not protruding.

W. Australia. From the valleys S. of Stirling range to Salt River and Phillips range, *Maxwell*.

74. ***E. occidentalis*, Endl. in Hueg. Enum. 49.** A tall shrub or tree, attaining sometimes 80 ft. (*Oldfield*). Leaves from oval-oblong and under 2 in. to narrow-lanceolate, falcate and above 4 in. long, very thick, with oblique veins scarcely conspicuous or rarely prominent underneath, the intramarginal one a little distant from the edge. Peduncles axillary or lateral, more or less flattened and often recurved, with 3 to 5 flowers on rather thick pedicels of 2 to 3 lines. Calyx-tube urceolate-oblong, 3 to 4 lines long at the time of flowering, smooth or obscurely ribbed, usually somewhat dilated at the orifice. Operculum $\frac{1}{2}$ to $\frac{3}{4}$ in. long, very obtuse or rarely almost acute.

Stamens $\frac{1}{2}$ to $\frac{3}{4}$ in. long, erect as in *E. cornuta*; anthers oblong, with parallel cells. Ovary very convex or conical at the top. Fruit urceolate, 6 to 8 lines long when full grown, about 5 lines diameter at the top and narrower below, the rim narrow, not prominent, the capsule somewhat sunk but conical in the centre, and the valves protruding when open.—Schau. in Pl. Preiss. i. 128; F. Muell. Fragm. ii. 39.

W. Australia. From Kalgan river and the W. end of Stirling range eastward to Cape Riche and Cape Le Grand, *Maxwell*; *Oldfield*; *Harvey*; *Preiss*, n. 228 and 240; *Drummond*, 4th Coll. n. 74, also n. 152.

In some of Drummond's and Oldfield's specimens the leaves are smaller and narrower, the calyx and fruit smaller, the orifice slightly contracted, and the very small valves scarcely protrude.

75. *E. spathulata*, Hook. Ic. Pl. t. 611. A shrub of 6 to 8 ft. or rather more. Leaves linear, linear-lanceolate or rarely oblong-lanceolate, straight or slightly falcate, under 3 in. long, thick and rigid so as wholly to conceal the veins. Peduncles short, axillary or lateral, flattened but usually not very broad, each with about 4 to 6 flowers. Calyx-tube obovoid, thick, about 2 lines long, tapering into a short thick pedicel. Operculum cylindrical, obtuse, often narrower than the calyx and about twice as long. Stamens erect, slightly flexuose, about 4 lines long, the border of the staminal disk inflexed over the sunk ovary; anthers oblong, parallel-celled. Style slightly thickened at the base. Fruit obovoid, 3 lines or rather more in length and nearly as much in diameter, contracted at the orifice, which is further closed by the rather broad flat rim; capsule sunk, but the points of the valves sometimes slightly protruding.

W. Australia. Between Perth and King George's Sound, *Harvey*; *Drummond*, 3rd Coll. n. 68.

Var. *grandiflora*. Leaves rather broader. Flowers and fruits larger.—Phillips range, *Maxwell*.

The species has much of the aspect of the narrow-leaved forms of *E. redunca*, but in that the operculum is acuminate, and the stamens more or less inflexed in the bud.

SUBSERIES V. EXSERTÆ.—Peduncles axillary or lateral, or rarely the upper ones in a short terminal corymb, terete or slightly flattened, each with several, often many, flowers usually pedicellate. Fruit globose or depressed, usually more or less contracted at the orifice, the rim convex or prominent or rarely flat, the capsule-valves protruding beyond it.

76. *E. pallidifolia*, F. Muell. Fragm. iii. 131. A small tree with an ash-coloured smooth bark (*F. Mueller*). Leaves ovate-oblong or lanceolate, very obtuse and rarely 3 in. long, thick and smooth, the fine parallel very diverging veins scarcely visible, the intramarginal one close to the edge. Peduncles axillary or lateral, short, nearly terete, with 4 to 6 nearly sessile or shortly pedicellate flowers. Calyx-tube short, about 2 lines diameter. Operculum hemispherical or obtusely conical, shorter than the calyx-tube. Stamens about 2 lines long, inflexed in the bud; anthers ovate with parallel distinct cells. Ovary flat-topped. Fruit obovoid-globose, 3 to 4 lines diameter, slightly contracted at the orifice, the rim broad, convex, and prominent, the capsule not sunk, the valves protruding and sometimes acuminate by the persistent split base of the style.

N. Australia. Sandstone table-land on the Upper Victoria river and Sturt's Creek, *F. Mueller*.—As observed by *F. Mueller*, this resembles in some respects *E. oleosa*, but the venation of the leaves and the fruit are different.

77? **E. pachyphylla**, *F. Muell. in Journ. Linn. Soc.* iii. 98. A tall shrub. Leaves ovate or ovate-lanceolate, abruptly acuminate, under 4 in. long, very thick and smooth, the fine diverging parallel veins scarcely conspicuous. Flowers not seen. Fruiting-umbels nearly sessile; fruits on thick terete pedicels, nearly hemispherical, 4-ribbed, very hard and woody, $\frac{3}{4}$ to 1 in. diameter, the rim very broad and conically exerted, the capsule depressed below the rim, the valves scarcely protruding. Seeds broad and flat, bordered by a narrow wing.

N. Australia. Sandy desert at Hooker's Creek, *F. Mueller*.—The specimens are insufficient to determine the affinities of this species. In some respects they resemble *E. cosmophylla* and its allies, but the fruit, the seeds, and perhaps the inflorescence are different.

78. **E. Oldfieldii**, *F. Muell. Fragm.* ii. 37. A shrub of 8 to 10 ft., with a smooth ash-grey bark coming off in layers (*Oldfield*). Leaves ovate-lanceolate or lanceolate-acuminate, often falcate, mostly under 4 but sometimes above 6 in. long, very thick, the veins numerous and rather oblique but scarcely conspicuous, the intramarginal one near the edge, or when the leaf is broad, distant from it. Peduncles axillary or lateral, very short or scarcely any, each with 2 or 3 rather large flowers, sessile or on very short pedicels. Calyx-tube broadly hemispherical, hard and smooth, about $\frac{1}{2}$ in. diameter. Operculum hemispherical, as long as or rather longer than the calyx-tube, usually unbonate or with a small point. Stamens dark-coloured, connivent in the bud, but only slightly inflected, showing their anthers; anthers oblong, with distinct parallel cells. Disk forming a more or less raised ring within the stamens round the flat-topped ovary. Fruit depressed-globose, 7 to 8 lines diameter, the rim very broad, at length convex and much raised, the capsule somewhat depressed in the centre, with the valves slightly prominent.

W. Australia, *Drummond*, 5th Coll. Suppl. n. 35; Murchison river, *Oldfield*.

79. **E. pachyloma**, *Benth.* A shrub of 5 ft. (*Maxwell*). Leaves mostly lanceolate or linear-lanceolate, acuminate, under 3 in. long, thick and rigid, the very oblique veins scarcely conspicuous, the intramarginal one at a distance from the edge. Peduncles axillary or lateral, short and thick, terete or slightly angular, each with 2 to 4 rather large flowers. Calyx-tube broadly turbinate or almost hemispherical, about 4 lines diameter, smooth and tapering into the very short thick pedicel. Stamens pale-coloured, $\frac{1}{2}$ in. long or more, slender and inflected in the bud; anthers ovate with distinct parallel cells. Disk concave. Fruit sessile, depressed-globose, 7 to 8 lines diameter, with the very thick broad convex and raised rim of *E. Oldfieldii*, but without any depressed centre, the capsule not sunk, and the small valves protruding as in *E. rostrata*.

W. Australia, *Drummond*, 4th Coll. n. 64; sand plains, Kalgan river, *Oldfield*; valleys of the Stirling range, *Maxwell*.

80. **E. Drummondii**, *Benth.* Leaves from ovate-oblong to lanceolate, obtuse or acuminate, under 3 in. long, very thick, with very fine close parallel veins, very diverging or almost transverse, but scarcely conspicuous,

the intramarginal one close to the edge. Peduncles axillary or lateral, $\frac{1}{2}$ to $1\frac{1}{2}$ in. long, terete or nearly so, each bearing an umbel of 3 to 6 rather large flowers on terete pedicels often $\frac{1}{2}$ in. long. Calyx-tube broadly hemispherical, hard and smooth, 4 to 5 lines diameter. Operculum conical, rather broader and considerably longer than the calyx-tube. Stamens about $\frac{1}{2}$ in. long, inflected in the bud; anthers rather small, ovate, with distinct parallel cells. Disk very broad, nearly flat, forming a prominent ring round the ovary, of which the obtusely conical centre protrudes about 1 or $1\frac{1}{2}$ lines above the disk at the time of flowering. Fruit unknown.

W. Australia. Between Swan River and King George's Sound, *Drummond*, 2nd Coll. n. 86; also 5th Coll.

81. **E. orbifolia**, *F. Muell. Fragm.* v. 50. A shrub of 5 ft. (*C. Harper*), the foliage nearly white or yellowish in the single small specimen seen. Leaves nearly orbicular, very obtuse, under 2 in. diameter, very thick and smooth, the veins irregular and distant but scarcely conspicuous. Peduncle axillary, terete, not $\frac{1}{2}$ in. long, with the scars of 5 flowers. Pedicels short and terete. Calyx-tube broadly hemispherical, smooth, about $\frac{1}{2}$ in. diameter. Operculum thick, conical, nearly twice as long as the calyx-tube. Stamens very numerous, inflected in the bud; anthers ovate, with distinct parallel cells. Disk narrow round the conical summit of the ovary, which protrudes 3 or 4 lines above the border of the calyx, tapering into the short thick style. Fruit unknown.

W. Australia. Granite hills in the interior to the north of Swan river, *C. Harper*. Although evidently allied to *E. Drummondii*, this appears to be specifically distinct both in the leaves and the parts of the flowers.

82. **E. angustissima**, *F. Muell. Fragm.* iv. 25. A bushy shrub of 5 ft. (*Maxwell*). Leaves narrow-linear, acuminate or almost aristate, 2 to 3 in. long, the veins inconspicuous. Peduncles axillary, very short, terete, each with 2 to 4 small flowers, only seen in bud. Calyx-tube depressed-hemispherical, not 2 lines diameter. Operculum very obtuse, rather longer than the calyx-tube. Stamens inflected in the bud; anthers with parallel distinct cells. Fruit depressed-globular, about 3 lines diameter, contracted at the orifice, the rim convex, the capsule on a level with it, the valves worn away in the specimens seen.

W. Australia. Point Malcolm and eighty miles away to the eastward, *Maxwell*.

83. **E. leptopoda**, *Benth.* Branchlets slender. Leaves linear-lanceolate, acuminate, often above 4 in. long, not very thick but the veins inconspicuous. Peduncles axillary or lateral, slender, terete or slightly flattened, bearing each a loose umbel of 10 to 15 small flowers on slender pedicels much longer than the buds. Calyx-tube broadly turbinate or almost hemispherical, about $1\frac{1}{2}$ lines diameter. Operculum conical, from a little shorter to a little longer than the calyx-tube and not so broad. Stamens inflected in the bud, flexuose, not 2 lines long; anthers ovate or almost globose, with parallel distinct cells. Fruit depressed-globular, nearly 3 lines diameter, the rim broad, flat or slightly convex, the capsule not sunk, the valves protruding when open.

W. Australia, *Drummond*, 5th Coll. Suppl. n. 33 and 36, also n. 151 and 188 of other sets.

In the specimens n. 188 the buds are rather larger than in the others, the peduncles and pedicels shorter and the fruits smaller, scarcely 2 lines diameter, with long prominent points to the valves.

84. **E. cinerea**, *F. Muell. Herb.* A moderate-sized tree, with a whitish-brown persistent bark, somewhat fibrous, the foliage more or less glaucous or mealy white. Leaves opposite, sessile, cordate, ovate or ovate-lanceolate, obtuse or acute, mostly 2 to 4 in. long. Peduncles axillary or in short terminal corymbs, terete or nearly so, each with 3 to 7 pedicellate flowers. Calyx broadly turbinate, about 2 lines diameter or rather more. Operculum conical, shorter than the calyx-tube. Stamens 2 to 3 lines long, inflected in the bud; anthers small but ovate, with distinct parallel cells. Ovary convex in the centre. Fruit semiglobose or subglobose-truncate, about 3 lines diameter, often slightly contracted at the orifice, the rim thin, the capsule very slightly sunk but the valves protruding.

N. S. Wales. Lachlan river, near Bathurst, *A. Cunningham*; also Lake George, *Herb. F. Mueller.*

F. Mueller (Fragm. ii. 70) unites this with *E. pulverulenta*, of which it may be a variety, but, as far as the specimens go, the differences in the leaf, in the size of the flower, and in the shape of the fruit appear to be constant. It may, however, be an opposite-leaved state of *E. dealbata*, and possibly, as well as that species, a form of *E. viminalis*.

85. **E. dealbata**, *A. Cunn.; Schau. in Walp. Rep. ii. 924.* A small stunted tree, the foliage often glaucous-white, the bark rugose or separating in scales, leaving the inner bark white and smooth (*C. Stuart*). Leaves from ovate to ovate-lanceolate and under 4 in. long or sometimes lanceolate and longer, obtuse or acute, the veins oblique and irregular, the intramarginal one at a distance from the edge, all usually conspicuous. Peduncles axillary or lateral, very short and scarcely flattened, bearing each 3 to 6 flowers on short pedicels. Calyx-tube very open, about 2 lines diameter and not so long. Operculum broad, rather thin, hemispherical or conical, longer than the calyx-tube. Stamens about 3 lines long, inflected in the bud; anthers ovate, with parallel distinct cells. Ovary more or less conical in the centre, tapering into the style. Fruit almost hemispherical, about 3 lines diameter, the rim flat, the valves protruding even before they open.

Queensland. In the interior, *Mitchell.*

N. S. Wales. Rocky situations in the interior, *A. Cunningham*; New England, *C. Stuart*, also probably a specimen in young bud of a "Box," *Leichhardt*; Mudgee, "River Gum," *C. Moore*. It is possible that this may prove to be the true *E. pallens*, DC. *F. Mueller* thinks it may be reducible to a variety of *E. viminalis*.

86. **E. viminalis**, *Labill. Pl. Nov. Holl. ii. 12. t. 151.* A tree usually of moderate size, but sometimes attaining a great height with a rough persistent bark, at least on the trunk and main branches, that of the smaller branches often smooth and deciduous, and sometimes the whole described as deciduous. Leaves lanceolate and more or less falcate and acuminate, 3 to 6 in. long, the veins rather regular, numerous and diverging, the intramarginal one near the edge. Peduncles short, axillary or lateral, bearing in some specimens especially southern ones always 3 flowers on short pedicels, in others 6 to 8 flowers more distinctly pedicellate, but always much less so than in *E. rostrata*. Calyx-tube turbinate or hemispherical, 2 lines or rather more in diameter. Operculum somewhat conical and about as long as the calyx-

tube or rarely rather longer and acuminate. Stamens about 3 lines long, inflected in the bud; anthers ovate with parallel distinct cells. Ovary short, flat-topped. Fruit subglobose-truncate, from 3 to 4 or 5 lines diameter, the rim rather broad, at first flat but if well ripened usually prominent above the border of the calyx, the capsule not sunk, the valves short horizontal or protruding when open.—DC. Prod. iii. 218; Hook. f. Fl. Tasm. i. 134; Miq. in Ned. Kruidk. Arch. iv. 125; F. Muell. Fragm. ii. 64; *E. diversifolia*, Bonpl. Pl. Malm. 35. t. 13; DC. Prod. iii. 220; *E. elata*, Dehnh.; Walp. Rep. ii. 163; *E. mannifera*, A. Cunn., and perhaps also Moodie; Walp. Rep. ii. 163, although incorrectly described; *E. persicifolia*, Lodd. Bot. Cab. t. 501 (from the fig.), not of DC.; *E. granularis*, Sieb. Pl. Exs.; *E. pitularis*, DC. Prod. iii. 218, not of Sm.

N. S. Wales. Port Jackson or Blue Mountains, *Caley*, *Sieber*, n. 474, and *Fl. Mirt.* n. 604, and others; very generally dispersed through the country bordering on Bathurst Downs, "Blue Gum," *A. Cunningham*; Argyle county, *Backhouse*; Exhibition woods, n. 108, *Macarthur*; near Duck river, "Drooping Gum," *Woolfs*; New England, *C. Stuart*; and Camden, "Woolly butt," *Woolfs*; also *Caley* (specimens with a hemispherical calyx-tube and broad almost globular operculum).

Victoria. Port Phillip, *R. Brown*; in fertile districts in plains as well as in the hills, "Box-tree" and "Peppermint Gum" of Ovens river, *F. Mueller*; "Weeping Gum," with red and with white timber, *Robertson*.

Tasmania. Port Dalrymple and Derwent river, *R. Brown*; abundant throughout the island, *J. D. Hooker*.

S. Australia. Memory Cove, *R. Brown*; Mount Gambier to Rivoly Bay, Lofty and Bugle ranges, *F. Mueller*; Kangaroo Island, *R. Brown*, *Waterhouse*, these specimens precisely agreeing with those of *E. diversifolia* from French gardens, originally raised from Kangaroo Island seeds.

The species varies very much in the size and number of the flowers, and the shape of the operculum. In the original Tasmanian form, common also in Victoria, the peduncles are mostly 3-flowered, although occasionally many-flowered specimens occur. In the S. Australian *E. diversifolia*, the flowers are rather numerous in the umbel, and the fruit large. In the N. S. Wales specimens the flowers and fruits are usually small, the buds very smooth and shining, and the bark sometimes said to be quite smooth, probably when the rough bark has shed.

E. patentiflora, F. Muell., is referred here in F. Muell. Fragm. ii. 64. The specimens described under that name by Miq. in Ned. Kruidk. Arch. iv. 125 belong to *E. melliodora*.

E. fabrorum, Schlecht. in Linnæa, xx. 656, was supposed by F. Mueller to refer to *E. obliqua*, owing to his stating it to be the "Stringy-bark" of the colonists, but Behr's specimen in Herb. Sonder, communicated by Schlechtendahl, is evidently the large-fruited form of *E. viminalis*.

E. Gunnii, Miq. in Ned. Kruidk. Arch. iv. 126 (not of Hook. f.), from Streletzky range, Victoria, appears to be *E. viminalis*.

87. ***E. rostrata***, Schlecht. Linnæa, xx. 655. A tall tree with a greyish-white bark, smooth and separating in thin layers (*F. Mueller*, and others), rarely persistent and rough? (*F. Mueller*). Leaves lanceolate, mostly falcate and acuminate, 3 to 6 in. long or even more, the lower ones sometimes ovate or ovate-lanceolate and straight, not thick, the veins rather regular, numerous and oblique, the intramarginal one not close to the edge, or in some desert specimens thick with the veins much less conspicuous. Peduncles rather short, terete or scarcely compressed, bearing each about 4 to 8 flowers on rather long pedicels. Calyx-tube hemispherical, 2 to 2½ lines diameter. Operculum more hemispherical than in *E. viminalis* and about as long as or shorter

than the calyx without the point or beak, which is almost always prominent and sometimes rather long, or very rarely the whole operculum is elongated and obtuse without any beak, but much shorter than in *E. tereticornis*. Stamens about 2 lines long, inflected in the bud; anthers small, ovate, with parallel distinct cells. Ovary short, convex or conical in the centre. Fruit nearly globular, rarely above 3 lines diameter, the rim broad and very prominent, almost conical, the capsule not sunk and the valves entirely protruding even before they open.—F. Muell. in Journ. Linn. Soc. iii. 83; *E. longirostris*, F. Muell.; Miq. in Ned. Kruidd. Arch. iv. 125.

N. S. Wales. Lachlan and Darling rivers to the Barrier range and Cooper's Creek, Victorian and other Expeditions; New England, C. Stuart; "Flooded Gum" of the colonists, F. Mueller.

Victoria. From the Yarra to the Murray, F. Mueller.

S. Australia. Banks of streams, "White Gum," Behr; from the Murray to St. Vincent's Gulf, "Red Gum," F. Mueller, and others; Three-Well River, Waterhouse; W. of Lake Torrens, Babbage, in Herb. R. Br.

This species, designated as "Red Gum" and "White Gum" by several collectors, is, as observed by F. Mueller, very closely allied to *E. viminalis* and *E. tereticornis*. From the former it differs in the longer pedicels, in the operculum, and in the shape of the fruit, the rim and capsule always much more exerted. From *E. tereticornis* it is chiefly distinguished by the operculum. It has also usually smaller flowers and fruits. In one specimen from the granite hills between Nine-mile Creek and Broken River, Victoria, F. Mueller has appended the note that the bark is persistent like that of "Box."

E. acuminata, Hook. in Mitch. Trop. Austr. 390, from the interior of Queensland, appears to be a variety of *E. rostrata*, with the operculum more conical and less rostrate, approaching the var. *brevirostris* of *E. tereticornis*.

88? **E. exserta**, F. Muell. in Journ. Linn. Soc. iii. 85. A moderate-sized or small tree, the bark ash-brown, rough and fissured outside and falling in fragments, somewhat fibrous inside (F. Mueller), dark iron-grey and roughish (Oldfield). Leaves lanceolate, mostly falcate and acuminate, 3 to 6 in. long or sometimes much more, the lower ones often ovate, rather thick, the veins rather regular, numerous and oblique, the intramarginal one not close to the edge. Peduncles axillary or lateral, terete or scarcely compressed, bearing each 3 to 8 flowers on distinct often rather long pedicels. Calyx-tube hemispherical, about 2 lines diameter (or sometimes nearly 3?). Operculum hemispherical or broadly conical, more or less beaked, acuminate and rather longer than the calyx-tube. Stamens about 2 lines long or rather more, inflected in the bud; anthers ovate with parallel distinct cells. Fruit nearly globular, 3 to 4 lines diameter, the rim broad and very prominent, almost conical, the capsule not sunk, and the valves entirely protruding even before they open.

Queensland. Burnett river, F. Mueller.

W. Australia. Murchison river, Oldfield.

This is probably the same as *E. rostrata*, notwithstanding the differences described in the bark. There may be also some confusion in Oldfield's specimens, the larger-flowered ones may belong to *E. rudis*, which differs in its large flowers, shorter pedicels, and in the much larger fruit with a flat rim.

89. **E. tereticornis**, Sm. Bot. Nov. Holl. 41, and in Trans. Linn. Soc. iii. 284. A tall tree, with a smooth whitish or ash-coloured bark shedding in thin layers (F. Mueller and others). Leaves lanceolate, mostly falcate and acuminate, often exceeding 6 in. long, the veins rather regular and numerous and oblique as in *E. rostrata*, but often rather coarser, the intramarginal

one rather distant from the edge. Peduncles axillary or lateral, not very short, terete or angular, the upper ones sometimes forming a short panicle, each bearing about 4 to 8 flowers on pedicels of 1 to 3 lines. Calyx-tube turbinate, 2 to nearly 3 lines diameter. Operculum conical, acuminate, usually about $\frac{1}{2}$ in. long, always much longer than the calyx-tube and usually broader, of a rather thin texture and smooth. Stamens often $\frac{1}{2}$ in. long, more or less inflected in the bud, but sometimes only very shortly so at the ends; anthers small, ovate, with parallel distinct cells. Ovary nearly as long as the calyx-tube and convex or conical in the centre. Fruit obovoid or almost globular, 3 to 4 lines diameter, the rim broad and very prominent, the capsule not sunk, the valves protruding beyond the rim.—DC. Prod. iii. 216; F. Muell. in Journ. Linn. Soc. iii. 83, and Fragm. ii. 65; *Leptospermum umbellatum*, Gärtn. Fruct. i. 174. t. 35; *E. subulata*, A. Cunn.; Schau. in Walp. Rep. ii. 924.

Queensland. Bay of Inlets, *Banks and Solander*; Broad Sound, Shoalwater, and Keppel Bay, *R. Brown*; Percy island, *A. Cunningham*; Brisbane river, Moreton Bay, *A. Cunningham*; Port Denison, *Fitzalan, Dallachy*; Rockingham Bay, "Red Gum" and "Blue Gum," *Dallachy*.

N. S. Wales. Port Jackson, *Woolfs*, and others; Clarence river, *Wilcox*; Macleay and Hastings rivers, *Beckler*; Richmond river, *C. Moore*; "Bastard Box," *Woolfs*.

Victoria. Snowy River, Mitchell river, and Providence pounds, *F. Mueller*.

Var. *latifolia*. Leaves ovate to lanceolate. Flowers with a strong cimicine smell.—Shoalwater passage, *R. Brown*.

Var. *brachycorys*. Operculum more obtuse, 3 to 4 lines long.—With the other specimens from Brisbane Macleay and Hastings rivers, from Paramatta, and from the Blue Mountains. To this also probably belong the Mitchell river specimens, in which, however, the buds are not full grown.—*E. punctata*, DC. Prod. iii. 217, founded on Sieber's specimens, n. 623, which I have not seen, appears from his diagnoses and from the figure Mem. Myrt. t. 4, to be the same variety with a short operculum, also described in a state of young bud.

Var. *brevifolia*. Leaves mostly ovate or oblong, obtuse.—New England, in very exposed situations in the mountains, *O. Stuart*.

The common form with a long operculum, when in very young bud, requires some caution in distinguishing it from the rostrate varieties of *E. siderophloia* and *E. resinifera*. The venation of the leaf is then the best guide.

SUBSERIES VI. SUBEXSERTÆ.—Peduncles axillary or lateral or also the upper ones more or less paniculate, terete or flattened, several-flowered. Calyx-tube broad at the orifice. Fruit turbinate, the orifice not contracted, the capsule level or slightly sunk, the valves often protruding when open.

90. ***E. platyphylla***, *F. Muell. in Journ. Linn. Soc.* iii. 93. A handsome tree, with a light green foliage and smooth white deciduous bark (*F. Mueller*). Leaves ovate or rhomboid, acuminate or obtuse, the larger ones sometimes 8 to 10 in. long and broad and almost cordate, but mostly much smaller and sometimes passing into ovate-lanceolate, rather rigid, the veins prominent, diverging, and anastomosing. Peduncles axillary or lateral, very short and rather thick, each with 3 to 6 or rarely more flowers on short thick angular pedicels. Calyx-tube turbinate or nearly hemispherical, about 3 lines diameter, the margin prominent in the bud after the outer operculum has fallen. Operculum not thick, hemispherical, shorter than the calyx-tube. Stamens 3 to 4 lines long, all perfect, inflected in the bud; anthers oblong, with parallel distinct cells. Ovary flat-topped. Fruit obconical, 4 to 5 lines

diameter, not contracted at the orifice, the rim thick, convex and prominent, the capsule nearly on a level with it, and the valves shortly protruding.

N. Australia. Islands of the Gulf of Carpentaria, *R. Brown*.

Queensland. Shoalwater Bay, *R. Brown*; fertile pastures on the Burdekin, *F. Mueller*; Percy Island, *A. Cunningham*; Endeavour river, *W. Hill*; common about Rockhampton, *Dallachy*; Broad Sound, *Fitzroy*; Bowen river, *Bowman*.

E. populifolia, Hook. in Mitch. Trop. Austr. 204, from near Mount Owen, *Mitchell*; without flowers or fruits, but with remarkably-shaped galls on the branches, belongs more probably to this species than to *E. polyanthemus*.

E. bigalerita, F. Muell. in Journ. Linn. Soc. iii. 96, from the upper Roper river, appears to me to be the same species, with the outer operculum persisting till the bud has nearly attained its full size, whilst in the majority of specimens it falls off at a very early stage.

91. **E. alba**, Reinw. in Blume, *Bijdr.* 1101. A tall tree with a pale ash-coloured rough persistent bark (*F. Mueller*), the foliage of a pale glaucous hue. Leaves from ovate-oblong and 2 to 3 in. long, to ovate-lanceolate or broadly lanceolate, obtuse or scarcely acuminate and 5 to 6 in. long, with diverging veins and very much reticulate, the intramarginal vein very near the edge. Peduncles axillary, terete or nearly so, short, with few pedicellate flowers, not seen expanded. Buds small, ovoid, the operculum obtusely conical, as long as the calyx-tube. Fruit turbinate or obconical, about 3 lines diameter, the rim somewhat convex and rather broad, the capsule slightly depressed, the valves exerted.—Dene. Herb. Tim. Descr. 126; *E. tectifica*, F. Muell. in Journ. Linn. Soc. iii. 92.

N. Australia, *Baudin's Expedition* (Herb. R. Brown, from Herb. Mus. Par. marked "Côte occidentale," but as in other plants from the same expedition probably in error); grassy valleys, Macarthur river, Gulf of Carpentaria, *F. Mueller*. The Timor specimens from the Herb. Mus. Par. in Herb. R. Brown are in the same state of fruit only as Baudin's Australian one, so also is a Timor specimen of Zippelius's, communicated by Miquel to the Hookerian Herbarium. The *E. moluccana*, Roxb. Fl. Ind. ii. 498, referred here by Miquel, Fl. Ind. Bat. i. part i. 398, must, from Roxburgh's short description, be very different. No specimens of it have been transmitted, and the tree is probably lost from the Calcutta Gardens. That was probably the best evidence as yet obtained of the genus existing in the Indian Archipelago beyond Timor, for *E. deglupta* is described by Blume, and *E. multiflora*, by A. Gray, from specimens without flowers or fruit, and the others are only taken up from Rumphius's very incomplete descriptions and figures of the trunk and foliage, also without flowers or fruit.

Mitchell's specimens, referred by Black in Journ. Linn. Soc. iii. 92, to *E. tectifica*, belong to *E. dealbata*, the leaves of which sometimes assume the form of those of *E. alba*, but with a different venation.

92. **E. Stuartiana**, F. Muell.; *Miq. in Ned. Kruidt. Arch.* iv. 131. A tree attaining a considerable elevation, the bark of the branches smooth and deciduous, that of the trunk rough and rigid and somewhat stringy (*F. Mueller, Oldfield*). Leaves from broadly ovate-lanceolate to narrow lanceolate, mostly 3 to 6 in. long, much narrowed at the base, usually equal or nearly so, but sometimes oblique, thick, the nerves rather regular and diverging but scarcely conspicuous. Peduncles axillary or lateral, terete or slightly angular, with about 4 to 8 flowers on rather short thick pedicels. Calyx-tube smooth, often shining, turbinate, about 2 lines diameter, the border usually prominent in the bud. Operculum conical, sometimes acuminate, from rather shorter to rather longer than the calyx-tube. Stanens dark-coloured, 2 to nearly 3 lines long, inflected in the bud; anthers ovate-oblong,

with parallel distinct cells. Ovary short, flat-topped. Fruit almost turbinate, usually about 3 lines but varying from 2 to 4 lines diameter, not contracted at the orifice, the rim not thick, slightly prominent, the capsule level with it or slightly sunk, the valves horizontal or protruding when open.—*E. acervula*, Hook. f. Fl. Tasm. i. 135, not of Sieb.; *E. Gunnii*, F. Muell. Fragm. ii. 62, not of Hook.; *E. persicifolia*, Miq. in Ned. Kruidk. Arch. iv. 137, not of Lodd.; *E. Baueriana*, Miq. l. c. not of Schauer; *E. fulcifolia*, Miq. l. c. 136 (one specimen).

Queensland? A specimen with the Queensland woods of the Exhibition, 1862, *W. Hill*, appears to be this species but is in bud only.

N. S. Wales. Bathurst plains, *Fraser*.

Victoria. In plains and moist valleys, ascending the wooded moist mountains of the Australian Alps, extending to the western frontier, "White Gum," *F. Mueller*, also "Apple-tree" of the colonists from a label in Herb. *F. Mueller*.

Tasmania. Abundant in many parts of the colony, "Red Gum," *J. D. Hooker*.

S. Australia. From the Glenelg to Guichen Bay, *F. Mueller*.

This species is, as observed by *F. Mueller*, well distinguished from *E. piperita* (*E. acervula*, Sieb.) by the anthers; he unites it with *E. Gunnii*, but it appears to differ from that species in the more numerous, more pedicellate flowers, the shape of the fruit, etc. It is perhaps nearest to *E. viminalis*, differing, however, in foliage and in the shape of the fruit.

Var. longifolia. Leaves very long (4 to 8 in.) and acuminate, more or less falcate, but thick, with the veins scarcely conspicuous, the intramarginal one often near the edge. Umbels several-flowered. Operculum short.

N. S. Wales. "Yellow or Grey Gum and Bastard Box," *Woolfs?* in Herb. *F. Mueller*; Twofold Bay, "Turpentine Gum" or "Hicory," *Oldfield, F. Mueller*. In foliage and inflorescence this resembles in some measure *E. virgata*, but the buds, anthers, and fruit are quite different.

93? ***E. patellaris***, *F. Muell. in Journ. Linn. Soc.* iii. 84. A tall tree with a rough furrowed persistent dull whitish bark (*F. Mueller*). Leaves lanceolate, falcate, acuminate, about 4 to 6 in. long, the veins rather numerous and regular, oblique, the intramarginal one rather distant from the edge. Perfect flowers unknown. Inflorescence perhaps compound. Calyx-tube (only seen in a diseased persistent bud) hard, hemispherical, about 5 lines diameter, the border prominent. Operculum much depressed, umbonate. Fruit pedicellate, broadly urceolate, about 5 lines diameter, the orifice dilated, the rim broad and flat, the valves protruding.

N. Australia. Dry banks of the Roper river, *F. Mueller*. Described from specimens far too imperfect to determine the affinities.

94. ***E. rudis***, *Endl. in Hueg. Enum.* 49. A moderate-sized tree, the bark hard, rough, iron-grey, and persistent (*Oldfield*), corky (*Maxwell*). Leaves from ovate-lanceolate to narrow-lanceolate, often falcate, much acuminate, the longest exceeding 6 in., not very thick, the fine diverging veins not close nor yet very prominent, the intramarginal one not close to the edge. Peduncles axillary or lateral, terete or slightly flattened, each with about 4 to 8 flowers on pedicels from rather shorter to rather longer than the calyx-tube. Calyx-tube smooth, broadly turbinate, rather above 3 lines diameter. Operculum conical, as long as or rather longer than the calyx-tube. Stamens 3 to 4 lines long, inflected in the bud; anthers ovate or oblong with parallel distinct cells. Ovary shorter than the calyx, conical in the centre. Fruit broadly turbinate or almost hemispherical, 4 to 5 lines diameter, more or less

dilated at the orifice, the rim narrow, the capsule somewhat sunk but very convex or conical in the centre and the valves protruding when open.—Schau. in Pl. Preiss. i. 130.

W. Australia. Sandy woods, Swan River, *Preiss*, n. 252, *Drummond*, n. 58; Vasse river, "Flooded Gum," *Oldfield*; Gardner river and grassy flats near Salt River, "Swamp Gum," *Maxwell*.

I have not seen Huegel's specimens, but quote them on Schauer's authority, who has compared them. The fruiting specimens distributed by Preiss (not described by Schauer) belong to *E. patens*, which has much resemblance with *E. rudis* in foliage, but differs in inflorescence, flowers, and fruit.

95. **E. saligna**, *Sm. in Trans. Linn. Soc.* iii. 285. A tall tree with a smooth silver-grey shining bark, shedding in thin longitudinal strips (*Beckler*). Leaves from ovate-lanceolate to long-lanceolate, but usually narrow, acuminate, 4 to 6 in. long, with very numerous fine close transverse parallel veins, the intramarginal one close to the edge. Peduncles short, mostly flattened, each with 4 to 8 flowers. Calyx-tube narrow-turbinate, 2 to nearly 3 lines long, sessile or tapering into a short thick pedicel, the border of the calyx prominent in the bud and the orifice usually expanding after flowering. Operculum conical, about as long as the calyx-tube. Stamens 2 to 3 lines long, inflected in the bud, anthers ovate, with distinct parallel cells. Ovary conical in the centre. Fruit subglobose-truncate, not contracted at the orifice, the rim narrow, slightly raised above the calyx-border, the capsule somewhat or scarcely sunk, the valves more or less protruding.—DC. Prod. iii. 218.

N. S. Wales, *White*; Cox's river and Glendon, *Leichhardt*; Paramatta, "White Gum," *Woolfs*; "Grey Gum," *Herb. F. Mueller*, without the collector's name; Richmond and Clarence rivers, *Beckler*.

96. **E. resinifera**, *Sm. in White. Voy.* 231, in *Trans. Linn. Soc.* iii. 284, and *Exot. Bot.* t. 84. A tall tree with a rough persistent bark on the trunk but more or less deciduous on the branches (*Woolfs* and others). Leaves ovate-lanceolate to lanceolate, acuminate, straight or falcate, mostly 4 to 6 in. long, rather thick, with numerous fine close parallel and almost transverse veins, sometimes scarcely conspicuous, the intramarginal one close to the edge. Peduncles axillary or lateral, more or less flattened, each with about 6 to 8 or sometimes more flowers on pedicels usually short but sometimes longer than the calyx-tube. Calyx-tube broadly turbinate, $2\frac{1}{2}$ to 3 or rarely 4 lines diameter. Operculum conical or acuminate, much longer than the calyx-tube and often broader at the base as in *E. tereticornis*. Stamens 4 to 6 lines long, raised above the calyx-border by the disk, inflected in the bud; anthers small, ovate, with parallel distinct cells. Ovary not much shorter than the calyx, conical in the centre. Fruit obconical, subglobose-truncate or almost hemispherical, not contracted at the orifice, the rim not broad, convex or prominent, the capsule somewhat sunk or nearly level with it, the valves protruding.—DC. Prod. iii. 216.

Queensland. Valleys of the Upper Brisbane (with a very long operculum), *F. Mueller*; Head of the Cape, *Bowman*.

N. S. Wales. Port Jackson, *R. Brown*; "Red Gum," *White*; Cumberland and Paramatta, "Red Mahogany," "Red Gum," "Grey Gum," "Leather-Jacket," and "Hickory," *Woolfs*.

This species is allied in the fruit and foliage to *E. saligna*, differing chiefly in the pedicellate flowers and large operculum, and in the fruit to *E. Stuartiana*, from which it is readily distinguished by the venation of the leaves as well as by the operculum. When the operculum is long, the buds resemble those of *E. siderophloia*, var. *rostrata*, and of *E. tereticornis*, but the venation of the foliage and other characters are quite different. It varies much in the size of the flowers, the length of the pedicel, and in the operculum from under twice to four times the length of the calyx-tube. Smith's specimen is a garden one, with the operculum about twice the calyx-tube, but a native one in the Banksian herbarium, probably seen by Smith, has it three times the calyx-tube. Gaertner's figure and description of the fruit of *Metrosideros gummifera*, quoted by Smith as belonging to *E. resinifera*, and which has thus prevented the recognising the species, was taken from a specimen in the Banksian herbarium of *E. corymbosa*.

Var. *grandiflora*. Buds ovoid, about 4 lines diameter, the operculum broad and thick at the base, with a rather long beak or gradually tapering. Fruit about 4 to 6 lines diameter, with a raised rim and exserted valves.—Andr. Bot. Rep. t. 400; *E. hemilampyra*, F. Muell. Herb.—Manly Beach, "Forest Mahogany," *Woolfs*; "Swamp Mahogany," *Caley*. Very near and possibly referable to *E. pellita*.

97. ***E. pellita***, F. Muell. *Fragm.* iv. 159. A tree of 40 to 50 ft., with a rough dark grey bark (*Dallachy*). Leaves ovate-lanceolate or almost ovate, acuminate, nearly straight, 5 to 6 in. long or more, rigid, with numerous parallel almost transverse veins, the intramarginal one near the edge. Peduncles axillary or lateral, stout and much flattened, often 1 in. long, each with about 4 to 8 rather large flowers on thick angular pedicels often as long as the calyx-tube. Calyx-tube much broader and shorter than in *E. botryoides*, 5 to nearly 6 lines diameter and more or less angular. Operculum thick, hemispherical, broader than the calyx-tube, with a short obtuse beak. Stamens about $\frac{1}{2}$ in. long, somewhat raised above the calyx-border by the disk, inflexed in the bud; anthers ovate-oblong, with parallel distinct cells. Ovary very conical in the centre. Fruit subglobose-truncate or nearly hemispherical, 6 to 8 lines diameter, not contracted at the orifice, the rim raised above the calyx-border, slightly convex and rather broad, the capsule scarcely sunk, the valves much projecting.—*E. spectabilis*, F. Muell. *Fragm.* v. 45.

Queensland. Rockhampton, *Dallachy*. The species, as observed by F. Mueller, resembles *E. botryoides*, but differs in the larger especially broader flowers, in the conical ovary, and in the shape of the fruit. It is, however, very closely allied to *E. saligna* and *E. resinifera*, differing chiefly in the size of its leaves, flowers, and fruit, and should perhaps include the var. *grandiflora*, which I have referred to the latter.

SUBSERIES VII. INCLUSÆ.—Umbels usually several flowered, axillary or lateral and solitary or several together in lateral clusters or very short panicles and then sometimes reduced to one or two flowers each, the peduncles terete or rarely flattened. Fruit more or less contracted at the orifice, the capsule sunk, the valves not protruding, except their points when acuminate by the split base of the style.

98. ***E. Gunnii***, Hook. f. in Hook. *Lond. Journ.* iii. 499, and *Fl. Tasm.* i. 134. t. 27. A small often scrubby tree but attaining sometimes 30 ft., with a smooth bark (*J. D. Hooker*), the young foliage glaucous. Leaves from ovate-lanceolate or elliptical and obtuse to lanceolate-acute, under 3 in. long, usually much narrowed at the base and rarely oblique, thick, with the veins not numerous and scarcely conspicuous. Peduncles axillary, very short, each with 3 rather large almost sessile flowers. Calyx-tube turbinate,

tapering at the base, 2 to nearly 3 lines long, and not so much in diameter. Operculum hemispherical and umbonate or conical, much shorter than the calyx-tube. Stamens 2 to nearly 3 lines long, inflected in the bud; anthers ovate, with parallel distinct cells. Ovary flat-topped or nearly so. Fruit pear-shaped, truncate, somewhat contracted at the orifice, 2 to nearly 4 lines diameter, the rim rather thin and scarcely protruding, the capsule more or less sunk, the points of the valves sometimes slightly protruding.—*E. ligustrina*, Miq. in Ned. Kruidk. Arch. iv. 134, but probably not of DC.

Victoria. Summit of the Baw-Baw mountains, *P. Mueller*.

Tasmania. Abundant in Alpine districts at an elevation of 3 to 4000 ft., often forming small forests, "Cider-tree," *J. D. Hooker*.

In some old small fruits the valves are more exserted, but the shape is always different from that of *E. Stuartiana*, and in well-formed fruits the capsule is distinctly sunk. In other respects the species is as nearly allied to *E. riminalis* as to *E. Stuartiana*.

99. ***E. patens*, Benth.** A tree attaining a great height, with a rough, half-fibrous, persistent bark (*Oldfield*), or a shrub of 6 to 10 ft., with a smooth bark (*Maxwell*). Leaves mostly falcate, from ovate-lanceolate and under 3 in. to lanceolate-acuminate and 4 to 6 in. long, not very thick, with fine diverging veins rather numerous, the intramarginal one more or less distant from the edge. Peduncles axillary or lateral or forming short panicles, short, terete or slightly angular, each with 3 to 6 flowers on short pedicels. Calyx-tube turbinate at the base, very broad and open above the ovary, about 3 lines diameter. Operculum hemispherical and umbonate or broadly conical, not so long as the calyx-tube. Stamens pale-coloured, about 3 lines long, inflected in the bud; anthers ovate, with contiguous cells parallel and distinct. Ovary flat-topped. Fruit globular-truncate, nearly $\frac{1}{2}$ in. diameter, more or less contracted at the orifice, the rim narrow, the capsule sunk but not deep, flat-topped before opening, the valves not protruding.

W. Australia. Harvey river, "Black-butt," *Oldfield*; Tone river and granite rocks near Cape Arid, *Maxwell*; also *Drummond*, 4th Coll. n. 72; *Gilbert*; *J. S. Roe*; and in *Preiss's* collection in fruit distributed with the flowering specimens of *E. rudis*, but apparently not seen by Schauer.

100. ***E. concolor*, Schau. in Pl. Preiss. i. 129.** A tree of 30 to 40 ft., with a smooth bark (*Oldfield*), a small tree of 8 to 12 ft. (*Preiss*), with much of the aspect of *E. decipiens*, but larger and more rigid in all its parts. Leaves ovate-lanceolate to lanceolate-acuminate, often 4 to 5 in. long, thick and rigid, the fine diverging veins numerous and parallel but scarcely conspicuous, the intramarginal one nearer the edge than in *E. decipiens*. Peduncles short, axillary, broad and flat but thick, each with a head of 6 to 12 or more sessile flowers. Calyx-tube turbinate, thick and often angled, but otherwise smooth, about 3 lines long. Operculum conical or acuminate, rather longer than the calyx-tube. Stamens inflected; anthers globular, small, but not so small as in *E. decipiens*, with distinct parallel cells. Ovary conical or convex in the centre. Fruit globose-truncate, about 4 lines diameter, contracted at the orifice, the rim broad, flat or slightly convex, the capsule sunk, but the points of the valves usually protruding.

W. Australia. Doubtful-Island Bay and shady ravines, Point Irwin, *Oldfield*; near Fremantle, *Preiss*, n. 225; also *Drummond*, 4th Coll. n. 77.

Var. With the calyx tapering into a very short pedicel as in *E. goniantha*, but smooth as in *E. concolor*.—Doubtful Island, Peninsula, and Cape Arid, *Maxwell*.

101. ***E. goniantha***, *Turcz. in Bull. Mosc.* 1847, i. 163. Leaves ovate-lanceolate or lanceolate-acuminate, mostly falcate, rarely under 3 in. and sometimes above 4 in. long, thick and rigid, the very fine rather oblique veins numerous and parallel but scarcely conspicuous, the intra-marginal one close to or very near the edge. Peduncles axillary or lateral, short, rather thick and flattened, mostly recurved, each with 4 to 8 flowers on short thick angular pedicels. Calyx-tube very broadly turbinate, thick and very prominently ribbed, 3 to 4 lines diameter. Operculum strongly ribbed, nearly hemispherical at the base, with a thick obtuse beak as long as or rather longer than the calyx-tube. Stamens 4 to 5 lines long, inflected in the bud; anthers small, ovate, with parallel distinct cells. Fruit depressed-globular or subglobular, truncate, hard, more or less ribbed, or sometimes almost smooth, 4 to 5 lines diameter, somewhat contracted at the orifice, the rim rather broad and nearly flat, the capsule somewhat sunk, but the valves occasionally protruding.

W. Australia. King George's Sound or to the eastward, *Collie*; *Barter*; *Drummond*, 3rd Coll. n. 71; Franklin river, *Maxwell* (in fruit only with rather broad leaves).

102. ***E. falcata***, *Turcz. in Bull. Mosc.* 1847, i. 163. A shrub of 10 to 12 ft. (*Maxwell*). Leaves lanceolate, acuminate, often falcate, mostly under 4 in. long, thick and smooth, the very fine oblique veins scarcely visible. Peduncles axillary or lateral, terete or slightly angular, each with about 6 to 12 flowers on slender pedicels of 3 to 4 lines. Calyx-tube short, depressed, about 2 lines diameter, thick, and more or less distinctly furrowed, but not so much so as in *E. goniantha*. Operculum conical, acuminate, fully twice as long as and much narrower than the calyx-tube. Stamens 2 to 3 lines long, or rather more, inflected in the bud; anthers ovate, with parallel distinct cells. Fruit depressed-globular, 3 to 4 lines diameter, much contracted at the orifice, the rim narrow and flat, but the disk within the staminal margin forming a protruding ring over the capsule, which is sunk, but the long points of the valves, formed by the split base of the style, usually protrude.

W. Australia, *Drummond*, 3rd Coll. n. 70; plains to the north and south of Stirling range, *Maxwell*.

103. ***E. oleosa***, *F. Muell. Fragm.* ii. 56 (partly). A shrub or small tree, the bark of the trunk rough and persistent, that of the branches smooth (*F. Mueller*). Leaves mostly lanceolate, obtuse or acuminate, under 4 in. long, thick and smooth, the oblique and rather numerous veins scarcely conspicuous. Peduncles axillary or lateral, terete or slightly angular, each with about 4 to 8 more or less pedicellate flowers. Calyx-tube obovoid, more or less contracted at the base, and sometimes at the top, 2 to 2½ lines long. Operculum obtusely conical or shortly acuminate, usually exceeding the calyx-tube, and sometimes much longer and not very thick. Stamens 2 to 3 lines long, inflected in the bud, but without the acute angle of *E. uncinata*; anthers small, ovate, with parallel distinct cells. Ovary short, convex or conical in the centre. Fruit ovoid or globose, truncate, contracted at the orifice, about 3 lines long, the rim flat or concave, the capsule sunk, but the

slender points of the valves formed by the split base of the style often protruding.—*E. socialis*, F. Muell.; Miq. in Ned. Kruidk. Arch. iv. 132; *E. turbinata*, Behr. and Muell.; Miq. in Ned. Kruidk. Arch. iv. 137.

N. S. Wales. Mallee scrub of the Murray desert, *Beckler*.

Victoria. Murray desert, *F. Mueller, Dallachy*.

S. Australia. Port Lincoln, *Wilhelmi*.

W. Australia. Gravelly places near Moir's Inlet, *Maxwell*.—These specimens, as well as a few of those from the Murray desert, are distinguished by the long beak to the operculum.

The foliage of the species is that of *E. dumosa*, but it is well distinguished by the longer pedicels, the shape of the calyx, the thinner operculum, and the shape of the fruit.

104. ***E. decurva*, F. Muell. Fragm. iii. 130.** A large shrub of 10 to 12 ft., or a small tree of 10 to 30 ft., with a smooth bark (*Oldfield, Maxwell*). Leaves lanceolate, usually narrow, rarely ovate-lanceolate, acuminate, rarely exceeding 4 in. and often under 3 in. long, thick or rather thin, the veins diverging, but not close and scarcely visible, the intramarginal one more or less distant from the edge. Peduncles axillary or lateral, terete or somewhat flattened, each bearing an umbel of 3 to 7 flowers usually recurved and on rather long pedicels, but sometimes erect. Calyx-tube ovoid or almost cylindrical, 2 to 2½ lines long and nearly 2 lines diameter, abruptly contracted or obtuse at the base, not ribbed. Operculum hemispherical and broad at the base, with a central beak sometimes very short, sometimes above 2 lines long. Stamens about 3 lines long, the filaments slender and acutely inflected as in *E. uncinata* and *E. corynocalyx*; anthers very small, globular, with distinct parallel cells. Ovary short, convex or conical in the centre. Fruit ovoid, contracted at the orifice, 3 to 4 lines long and rather less in diameter, the rim narrow, the capsule deeply sunk.

W. Australia. Low flats and rich soil to the east of Kojonerup from the Stirling Range to East Mount Barren, *Maxwell*, also *Drummond*, 5th Coll. n. 186, all with narrow not very thick leaves; from Kalgan river and King George's Sound to the eastward, *Harvey, Oldfield, Maxwell*, with broader and thicker leaves; Vasse river, *Gilbert*, n. 266, with thick but narrow leaves.

A specimen in fruit only from Murchison river, *Oldfield*, looks like the same species. The *E. doratoxylon*, which in many respects resembles this species, differs in the leaves mostly opposite as well as in the stamens. The *E. decurva* itself is very closely allied to *E. oleosa*, but the shape of the calyx and fruit and the arrangement of the stamens are somewhat different. Both species, from the smallness of their anthers, come near to the *Micrantheræ*.

105. ***E. doratoxylon*, F. Muell. Fragm. ii. 55.** A large shrub. Leaves all opposite or nearly so, lanceolate, acuminate, nearly straight, under 3 in. long, the veins fine, oblique, and rather numerous, but scarcely conspicuous, the intramarginal one at a distance from the edge. Peduncles axillary or lateral, terete or nearly so, recurved, each bearing about 4 to 7 flowers on rather slender pedicels. Calyx-tube ovoid or almost cylindrical, about 2 lines long. Operculum hemispherical or shortly conical, with a rather long beak. Stamens 2 to 3 lines long, inflected in the bud, but not acutely so as in *E. decurva*; anthers ovate-oblong, with parallel distinct cells. Fruit ovoid, much contracted at the orifice, about 3 lines long and rather less in diameter, the rim narrow, the capsule deeply sunk.

W. Australia. Lucky Bay, *R. Brown*; Sullinup ranges, "Spearwood," and Russell

Range, *Maxwell*; *Barter*; also *Drummond*, 3rd Coll. n. 69, 4th Coll. n. 97.—Allied in many respects, especially in the inflorescence and shape of the flowers, to *E. decurva*; this species is readily distinguished by the leaves mostly opposite, and by the stamens.

106. ***E. aspera***, *F. Muell. in Journ. Linn. Soc.* iii. 95. A small tree, with a smooth ashy-white bark (*F. Mueller*), the branchlets and often the leaf-veins scabrous or hispid, the foliage often glaucous. Leaves sessile, opposite, cordate, ovate or oblong, obtuse, mostly under 2 in. long. Peduncles axillary or lateral, very short, each bearing 2 to 6 flowers, on pedicels either very short or longer than the calyx. Calyx-tube short and broad, 2 to nearly 3 lines diameter. Operculum hemispherical, obtuse, shorter than the calyx-tube. Stamens 2 to 3 lines long, inflected in the bud; anthers oval-oblong, with parallel distinct cells. Fruit ovoid-truncate, slightly contracted or straight at the orifice, 3 to 4 lines long, the rim thin, the capsule deeply sunk.

N. Australia. Sandstone table-land, upper Victoria river, *F. Mueller*.—The specimens are not in good state, but the species is evidently different from any others known to me.

107. ***E. grandifolia***, *R. Br. Herb.* A small tree, with the outer bark brown and deciduous, the inner whitish and very smooth (*R. Brown*). Leaves opposite or nearly so, petiolate, from ovate to ovate-lanceolate, 4 to 6 in. long in the specimens, but probably often larger, rigid, with rather fine diverging veins, the intramarginal one remote from the edge. Flowers rather large, on pedicels of $\frac{1}{2}$ to $\frac{3}{4}$ in., 3 to 10 together, rather clustered than umbellate on a very short lateral peduncle, reduced sometimes to a tubercle (probably the inflorescence consists of several umbels reduced to 1 or 2 flowers each). Calyx-tube very short, broad, and open, 4 to nearly 5 lines diameter. Operculum convex or almost hemispherical, obtuse or umbonate, much shorter than the calyx-tube. Stamens 4 to 5 lines long or rather more, inflected in the bud; anthers oblong, with parallel distinct cells. Ovary flat-topped. Fruit unknown.

N. Australia. Islands of the Gulf of Carpentaria, *R. Brown* (*Herb. R. Brown*).

108. ***E. clavigera***, *A. Cunn. in Walp. Rep.* ii. 926. A large shrub or small tree (*R. Brown*), with an ash-coloured bark (*F. Mueller*). Leaves from opposite, sessile or nearly so, and broadly ovate-cordate or almost orbicular, to alternate and broadly ovate or ovate-lanceolate, rarely above 4 in. long, rather rigid, the veins prominent, diverging or almost transverse, but not close. Peduncles short, two or more together on a short leafless branch forming lateral clusters or very short panicles, each peduncle bearing an umbel of several rather small flowers on slender pedicels often $\frac{1}{2}$ in. long. Calyx-tube turbinate, about 2 lines long and as much in diameter. Operculum very flat or convex, rarely almost hemispherical but much shorter than the calyx-tube. Stamens about 3 lines long, inflected in the bud; anthers ovate or oblong, with parallel distinct cells. Ovary flat-topped. Fruit from nearly globular to ovoid-oblong, 4 to 5 lines long, more or less contracted at the orifice, the rim thin, the capsule deeply sunk.—*E. polysciadia*, *F. Muell. in Journ. Linn. Soc.* iii. 98.

N. Australia. Careening Bay, N.W. coast, *A. Cunningham*; Islands of the Gulf of

Carpentaria, *R. Brown*; arid rocky hills near Macadam range, *F. Mueller*; Albert river, *Henne*.

109. **E. tessellaris**, *F. Muell. in Journ. Linn. Soc.* iii. 88. A middle-sized or large tree, the bark dark-brown, smooth and deciduous, the inner whitish and very smooth (*R. Brown*), the bark persistent on the trunk, dull ash-coloured, marked with longitudinal and transverse furrows forming separable pieces (*F. Mueller*), casts its bark in small angular pieces (*Mitchell*). Leaves lanceolate to almost linear, straight or falcate, 3 to 6 in. long, with numerous fine parallel diverging or almost transverse veins and more or less reticulate, the intramarginal vein close to the edge. Peduncles very short, usually several together in lateral clusters or very short panicles, often so reduced as to appear like a single compact irregular umbel, each peduncle with 3 to 6 (or when the inflorescence is compact 1 or 2) flowers on short or slender pedicels. Calyx-tube short, much widened above the ovary, 2 to 2½ or rarely nearly 3 lines diameter. Operculum very short and only slightly convex. Stamens 2 to 3 lines long, inflected in the bud; anthers ovate-oblong, with parallel distinct cells. Ovary flat-topped. Fruit ovoid or oblong, 3 to 4 lines long, slightly contracted at the orifice, the rim thin, the capsule deeply sunk.—*E. viminalis*, Hook. in Mitch. Trop. Austr. 157, not of Labill.; *E. Hookeri*, *F. Muell. in Journ. Linn. Soc.* iii. 90.

N. Australia. Careening and Vansittart's bays, N.W. coast, *A. Cunningham*; islands of the Gulf of Carpentaria, *R. Brown*; S.E. coast of the Gulf of Carpentaria, *F. Mueller*.

Queensland, *Bowman*; Fitzroy Downs, *Mitchell*; Port Denison, *Fitzalan*.

Var. *Dallachiana*. Veins of the leaves more oblique, the intramarginal one not so close to the edge, the cluster of umbels so dense as to be reduced almost to a sessile head.—**Queensland**, *Bowman*; Rockhampton, *Dallachy*.

110. **E. phoenicea**, *F. Muell. in Journ. Linn. Soc.* iii. 91. A middle-sized or small tree, the bark persistent or tardily falling off from the upper branches, and readily separable in flakes (*F. Mueller*). Leaves lanceolate, 4 to 6 in. long or even more, with fine diverging veins, numerous but somewhat reticulate, the intramarginal one close to the edge. Peduncles lateral, terete or nearly so, bearing each a dense umbel of numerous large flowers remarkable for their long narrow shape. Pedicels 2 to 3 lines long. Calyx-tube 5 to 6 lines long, obscurely ribbed, about 3 lines diameter at the orifice, and tapering downwards. Operculum hemispherical or conical, shorter than broad and much shorter than the calyx-tube. Stamens about ½ in. long, orange or scarlet, much inflected in the bud; anthers ovate, with parallel distinct cells. Ovary in the flower examined 2-celled. Fruit oblong, ¾ to 1 in. long, crowned by a narrow neck of about 2 or 3 lines, with a thin rim, the capsule sunk to the base of the neck.

N. Australia. Sandstone table-land on the Victoria and Upper Roper rivers, *F. Mueller*.

111. **E. diversicolor**, *F. Muell. Fragm.* iii. 131. A tree attaining 80 to 100 ft., the trunk decortivating by hard layers of ½ to ¾ in. thick, the limbs and branches by chartaceous laminæ (*Oldfield*). Leaves ovate-lanceolate or lanceolate, acuminate, often falcate, 3 to 6 in. long, rather thick, with numerous fine very diverging veins, often scarcely conspicuous, the intramar-

ginal one at some distance from the edge, dark above, pale underneath when fresh (*Oldfield*). Peduncles axillary or lateral, terete or scarcely angular, each with 3 to 6 rather large flowers, not seen however fully expanded. Calyx-tube turbinate when in bud, about 3 lines long, tapering into a pedicel nearly or quite as long. Operculum hemispherical or obtusely conical, rather shorter than the calyx-tube. Stamens inflexed in the bud; anthers ovate with parallel distinct cells. Ovary conical in the centre. Fruit ovoid-truncate, about $\frac{1}{2}$ in. long, 4 to 5 lines diameter, contracted at the orifice or almost urceolate, the rim rather thick, the capsule deeply sunk with a conical top, yet the valves much shorter than the border of the fruit.

W. Australia. King George's Sound, *R. Brown*; on small elevations in swamps near rivers beyond the reach of the water, Blackwood and Hay rivers, Wilson's Inlet and Perongrup ranges, "Blue Gum," *Oldfield*.

112 P ***E. loxophleba*, Benth.** A tree from 10 to 30 ft. high, with a rough ash-grey fibrous bark (*Oldfield*), 40 to 45 ft., the bark separable in layers (*Preiss*). Leaves lanceolate, acuminate, narrow and often 4 to 5 in. long or the lower ones shorter and broader, all rather rigid with very oblique rather distant and prominent veins, the intramarginal one distant from the edge. Peduncles axillary or lateral, terete or slightly flattened, each with a dense umbel of 6 to 12 flowers. Calyx-tube obconical, 2 to $2\frac{1}{2}$ or rarely nearly 3 lines long, tapering into a short pedicel. Operculum hemispherical or obtusely conical, shorter than the calyx-tube. Stamens scarcely exceeding 2 lines, inflexed in the bud, the filaments usually dark-coloured in the dry specimens; anthers small, with parallel distinct cells. Fruit narrow-obovoid, truncate, straight or slightly contracted at the orifice, rarely above 3 lines long and 2 lines diameter, the rim narrow, the capsule deeply sunk. —*E. amygdalina*, Schau. in *Pl. Preiss.* i. 130 (from the description given), not of Labill.; *E. fruticetorum*, F. Muell. *Fragm.* ii. 57 (as to the W. Australian specimens).

W. Australia. Swan River and Darling range, *Collie*; *Drummond*, 2nd *Coll.* n. 82; York district, *Preiss*, n. 246 (and 248 P); Murchison river and Champion Bay, "York Gum," *Oldfield*.

The "Yandee," a tree of 40 to 45 ft., with a nearly black persistent furrowed bark consisting of strap-like pieces, from the Murchison river, *Oldfield*, appears to be otherwise precisely the same.

Var. *fruticosa*. A shrub branching from the ground, the leaves rather broader, the flowers rather larger, the peduncles more flattened. —Murchison river, *Oldfield*; Salt river, *Maxwell*.

113. ***E. fœcunda*, Schau. in *Pl. Preiss.* i. 130.** A tall shrub with a dark smooth bark (*Oldfield*). Leaves lanceolate, acuminate, rarely exceeding 3 in., thick, with fine veins scarcely conspicuous and much more numerous and less oblique than in *E. loxophleba*, the intramarginal one very near the edge. Peduncles axillary or lateral, rather short, terete or slightly flattened, each with a dense umbel of 4 to 8 flowers. Calyx-tube ovoid-turbinate, 2 to $2\frac{1}{2}$ lines long, obtuse at the base or shortly tapering into the short pedicel. Operculum hemispherical, much shorter than the calyx-tube. Stamens 2 to 3 lines long, inflexed in the bud; anthers ovate with parallel distinct cells. Ovary flat-topped. Fruit ovoid oblong or almost cylindrical, slightly contracted at the orifice, about 2 lines diameter and varying in

length from under 3 to about 4 lines, the rim thin, the capsule deeply sunk, but sometimes the base of the style splits into long points to the valves protruding beyond the border of the fruit.

S. Australia? Specimens in young bud and in fruit from the S. coast, *R. Brown*, appear to belong to this species.

W. Australia. Swan River, *Drummond*, 2nd Coll. n. 87; limestone hills near Freemantle, *Preiss*, n. 231; Yencert, *Gilbert*, n. 263; Port Gregory, Murchison and South Hutt rivers, *Oldfield*; Sharks' Bay and Dirk Hartog's Island, *Milne*, also in the collection of Baudin's Expedition.—Different as the long and the short fruits appear, there are numerous intermediate forms, and the specimens do not otherwise differ.

114. **E. redunca**, *Schau. in Pl. Preiss.* i. 127. In the original form, a shrub or small tree with a smooth white bark (*Oldfield*, *Maxwell*). Leaves ovate-lanceolate or lanceolate-acuminate, under 3 in. long, thick, with fine oblique not close veins, often scarcely visible, the intramarginal one at a distance from the edge. Peduncles axillary or lateral, flattened or rarely terete, each with a dense umbel of 6 to 12 flowers. Calyx-tube narrow, $2\frac{1}{2}$ to nearly 3 lines long, tapering into a short thick or flattened pedicel. Operculum conical, acuminate, at least twice as long as the calyx-tube. Stamens 3 to 4 lines long, more or less inflected in the bud; anthers oblong, with parallel distinct cells. Ovary convex or shortly conical in the centre. Fruit obovoid or obovoid-oblong, 4 to 5 lines long and about 3 diameter, contracted at the orifice, the rim narrow, the capsule considerably sunk, the points of the valves rarely protruding.

W. Australia. King George's Sound and adjoining districts to Swan River and eastward to Cape Riche, *Preiss*, n. 232, 234, 245, 247; *Drummond*, 2nd Coll. n. 81 and 84; *Gilbert*, n. 271, and others.

Var. *melanophloia*. Leaves larger, more prominently veined.—Murchison and South Hutt rivers, a small tree with a smooth black bark, *Oldfield*.

Var. *angustifolia*. Leaves linear or linear-lanceolate.—*E. xanthoneura*, Turcz. in Bull. Mosc. 1847, i. 163; W. Australia, *Drummond*, 3rd Coll. n. 67, 5th Coll. n. 187; S. side of Stirling ranges and eastward to Phillips ranges, *Maxwell*.

Var. *elata*. A large tree, the trunk generally swelling out suddenly near the ground, forming a kind of pedestal, the bark smooth, white, decorticating in long chartaceous pieces (*Oldfield*). Operculum rather shorter and the fruit less contracted at the orifice, but not differing otherwise from the normal form.—Kalgan river, "White Gum," *Oldfield*.

The species, especially in the narrow-leaved forms, has much resemblance on the one hand to *E. fecunda*, on the other to *E. spathulata*, but is readily distinguished from the former by the operculum, from the latter by the stamens and the acuminate operculum.

SUBSERIES VIII. CORYMBOSÆ.—Flowers usually large, the umbels (or very rarely heads) all in a terminal corymbose panicle or rarely a few of the lower ones axillary. Fruit often large, more or less urceolate, the capsule deeply sunk. Seeds usually large, flat, with acute edges, often more or less expanded in a variously-shaped wing.

115. **E. perfoliata**, *R. Brown, Herb.* A large shrub of 10 ft. or more (*A. Cunningham*). Leaves opposite, connate, 6 to 8 in. long and 3 to 4 in. broad, very obtuse, glaucous with numerous parallel transverse veins. Flowers large, sessile in heads of 4 to 6, on terete peduncles forming a corymbose terminal panicle. Calyx-tube thick, broadly turbinate, smooth or nearly so, 7 to 8 lines long and as much in diameter. Operculum not seen. Stamens

above $\frac{1}{2}$ in. long, inflected in the bud; anthers small, ovate-oblong, with parallel distinct cells. Fruit urceolate, $1\frac{1}{2}$ in. long and above 1 in. diameter, smooth, the rim concave, the capsule sunk. Seeds not seen.

N. Australia. Barren hills, Rae's River, N.W. Coast, *A. Cunningham*; N.W. Coast, *Bynoe*.

116. **E. ferruginea**, *Schau. in Walp. Rep.* ii. 926. A moderate-sized tree, with a rough persistent dark grey bark (*F. Mueller*), the young branches and often the foliage more or less rusty-pubescent, or the branches hispid with a few stiff hairs or bristles, but sometimes quite glabrous. Leaves large, often 4 to 5 in. diameter, sessile, opposite, cordate orbicular or oblong, mostly obtuse and sometimes undulate. Flowers rather large, the umbels in a dense terminal corymbose panicle, or in one specimen a single umbel axillary. Peduncles and pedicels short, terete. Calyx-tube very broadly campanulate, 6 to 8 lines diameter. Operculum broadly conical, shorter than the calyx-tube. Fruit ovoid, when perfect about 1 in. long and $\frac{3}{4}$ in. diameter, contracted towards the orifice, the rim narrow, the capsule deeply sunk. Seeds winged.—*F. Muell. in Journ. Linn. Soc.* iii. 95; *E. confertiflora*, *F. Muell. l. c.* 96.

N. Australia. Copeland island, N.W. coast, *A. Cunningham*; Victoria river and Arnhem's Land, *F. Mueller*.

117. **E. setosa**, *Schau. in Walp. Rep.* ii. 926. A small or moderate-sized tree, with a smooth ash-grey bark (*R. Brown*), the branchlets and inflorescence more or less hispid with rust-coloured bristles. Leaves opposite, sessile, cordate orbicular and obtuse or ovate and almost acute, rarely above 2 in. long. Umbels shortly pedunculate, several-flowered, forming short, terminal, rather loose corymbose panicles. Pedicels often longer than the calyx. Calyx-tube obovoid, often slightly 8-ribbed, about 3 lines long, more or less covered with bristles. Operculum conical, shorter than the calyx-tube, often bearing a few bristles. Anthers ovate, parallel-celled. Ovary flat-topped, the style not dilated. Fruit urceolate-globular, much contracted at the top, hard and woody, $\frac{1}{2}$ to $\frac{3}{4}$ in. diameter, the rim narrow, the capsule sunk. Perfect seeds large, broadly winged. —*F. Muell. Fragm.* iii. 132.

N. Australia. Islands of the Gulf of Carpentaria, *R. Brown*; Sweers Island, *Henne*.

Queensland. Mount Elliott, *Fitzalan*, *Dallachy*, with fewer setæ on the buds.

118? **E. melissiodora**, *Lindl. in Mitch. Trop. Austr.* 235. A shrub, exhaling a powerful odour of balm, and covered with a rusty resinous pubescence, short and scabrous on the foliage, almost bristly on the branchlets. Leaves oblong-lanceolate, obtuse, more or less peltately inserted on the petiole above their base, the veins transverse but not close. Flowers and fruit unknown.

Queensland. Sandstone rocks, Balmly Creek, *Mitchell*. Possibly a barren state of *E. citriodora*, or some allied species, in which the leaves of the flowering branches are not peltate.

119? **E. peltata**, *Benth.* A tree with a dark shining brittle and flaky but persistent bark (*F. Mueller*). Leaves from nearly orbicular to oblong-ovate, obtuse, rather large, peltately inserted on the petiole above their base, rusty-scabrous or glabrous and somewhat glaucous, with diver-

ging but not close veins. Flowers rather large, nearly sessile in the umbels, which are arranged in oblong (or corymbose?) terminal panicles, but not seen expanded. Calyx-tube obconical in the bud, about 3 lines long, smooth and shining. Operculum much shorter, obtusely conical or hemispherical. Anthers ovate-oblong, with parallel cells. Fruit urceolate-globose, about 4 lines diameter, contracted above the deeply sunk capsule, the rim thin. Seeds (which I have not seen) smooth and not winged according to F. Mueller.—*E. melissiodora*, F. Muell. in Linn. Journ. Soc. iii. 95, not of Lindl.

Queensland. Porphyritic mountains, Newcastle range, *F. Mueller*.—Possibly a variety or state of some species allied to *E. latifolia* without the peltate leaves. The specimens are very imperfect.

120. ***E. latifolia***, *F. Muell. in Journ. Linn. Soc.* iii. 94. A small or middle-sized tree, with a smooth ash-grey bark, tardily separating from the inner brownish bark also smooth (*F. Mueller*). Leaves alternate or here and there almost opposite, petiolate, ovate, obtuse, with transverse parallel veins, rather more prominent and not so close as in the allied narrow-leaved species. Flowers rather large, 4 to 6 in each umbel, in a large terminal corymbose panicle. Peduncles terete; pedicels terete, shorter than the calyx-tube. Calyx-tube broadly turbinate, 4 to 5 lines diameter, rather thick. Operculum very short, slightly convex. Anthers ovate-oblong, with parallel distinct cells. Fruits globose-truncate or urceolate-globose with a very short neck, smooth and not ribbed, 3 to 4 lines diameter, the rim thin; the capsule deeply sunk. Seeds winged.

N. Australia. Islands of the Gulf of Carpentaria, *R. Brown*; upper part of the Roper river, *F. Mueller*.

121. ***E. ptychocarpa***, *F. Muell. in Journ. Linn. Soc.* iii. 90. A middle-sized or tall tree, with a persistent bark intermediate between that of the Stringy-barks and the Box-trees (*F. Mueller*). Leaves large, from broadly ovate to ovate-lanceolate, sometimes above a foot long, straight or falcate, with numerous fine closely parallel almost transverse veins. Flowers large, in umbels forming a terminal panicle, peduncles terete, $\frac{1}{2}$ to 2 in. long; pedicels sometimes very short, sometimes 1 to 2 in. long. Calyx-tube turbinate, $\frac{1}{2}$ to $\frac{3}{4}$ in. long, hard, with about 8 longitudinal ribs. Operculum not seen. Stamens above $\frac{1}{2}$ in. long; filaments rigid, inflected in the bud; anthers small, ovate, with distinct parallel cells. Fruits ovoid or slightly urceolate, very thick and hard, 1 to 2 in. long, with about 8 prominent ribs, the rim thick, the capsule sunk. Seeds winged.

N. Australia. Dry river-beds and rocky streams at the sources of the Wentworth, Wickham, and Limmen Bight rivers, *F. Mueller*; Melville Island, *Fraser*; Port Essington, *Gilbert*.—The fruit somewhat resembles that of *E. miniata*, but the venation of the leaves and the inflorescence are quite different.

122. ***E. calophylla***, *R. Br. in Journ. Geogr. Soc.* 1831, 20 (*name only*); *Schau. in Pl. Preiss.* i. 131. A beautiful tree, with a more dense foliage than usual in the genus, the rough corky bark coming off in irregular masses (*Oldfield*). Leaves ovate ovate-lanceolate or lanceolate, obtuse or mucronate-acute, rather rigid, with very numerous transverse parallel veins, the intramarginal one scarcely distant from the edge. Umbels loose, with

rather large flowers, in a terminal corymbose panicle, with one or two sometimes in the upper axils. Peduncles flattened or nearly terete, pedicels longer than the calyx-tube. Calyx-tube turbinate and often ribbed on the adnate part, the free part much dilated, often $\frac{1}{2}$ in. diameter. Operculum hemispherical, obtuse or umbonate, shorter than the calyx-tube and continuous with it till the flower expands. Stamens $\frac{1}{2}$ to $\frac{3}{4}$ in. long; anthers ovate, with parallel distinct cells opening longitudinally. Ovary flat or slightly convex on the top. Fruit when perfect ovoid-urceolate, 2 in. long and above 1 in. diameter, very thick and hard, with a thick neck contracted at the orifice, but sometimes the fruit is smaller, the neck less distinct and less contracted. Capsule deeply sunk. Seeds large, ovate, black, flat or with a raised angle on one face, the edges acute but scarcely winged, the hilum large on the inner face. —F. Muell. *Fragm.* ii. 35; *E. splachnicarpa*, Hook. Bot. Mag. t. 4036.

W. Australia. Common about King George's Sound, *R. Brown*, *Fraser*, *Oldfield*, and others; and thence to Swan River, *Fraser*, *Drummond*, n. 150; *Preiss*, n. 250, and others; rare towards Port Gregory, *Oldfield*; "Red Gum," *Oldfield*.

123. ***E. ficifolia***, *F. Muell. Fragm.* ii. 85. Only known from imperfect specimens in fruit, which differ in no respect from *E. calophylla*, except that the seeds are of a pale colour and the testa expanded at one end, or round one side into a broad variously-shaped wing. Further specimens may prove these differences not to be constant.

W. Australia. Broke's Inlet, "Black-butt," *Marwell*. From the Hay, Gordon, and Tone rivers in the same neighbourhood are flowering specimens undistinguishable from *E. calophylla*, which may possibly belong to this species.

124. ***E. corymbosa***, *Sm. Bot. Nov. Holl.* 43, and in *Trans. Linn. Soc.* iii. 287. Usually a small or middle-sized tree, but sometimes attaining a great height, with a persistent furrowed bark (*F. Mueller*). Leaves ovate-lanceolate or lanceolate, acuminate, about 3 to 6 in. long, with numerous fine transverse parallel veins, often scarcely visible. Umbels loose, several-flowered, mostly in a terminal corymbose panicle, the peduncles slightly compressed or angular. Flowers rather large, on pedicels of 2 to 4 lines. Calyx-tube, when open, broadly turbinate, 3 to 4 lines diameter, often dilated at the margin. Operculum short, hemispherical, umbonate or shortly acuminate. Stamens attaining 5 or 6 lines; anthers very small but ovate, with distinct parallel cells opening longitudinally. Ovary short, flat-topped. Fruit more or less urceolate, $\frac{1}{2}$ to $\frac{3}{4}$ in. long, usually contracted above the capsule and often expanded at the orifice, the rim narrow, the capsule sunk. Seeds large, ovate, more or less bordered by a wing, usually narrow. —DC. *Prod.* iii. 220; *F. Muell. Fragm.* ii. 46; *Metrosideros gummifera*, *Soland.* in *Gærtn. Fruct.* i. 170. t. 34. f. 1.

Queensland. E. coast, *A. Cunningham*; Rockhampton, *Dallachy*; dry ridges, Brisbane river, Moreton Bay, *F. Mueller*, *W. Hill*, *Fitzalan*.

N. S. Wales. Port Jackson, "Blood-tree," *R. Brown*; open forests, Clarence and Richmond rivers, *C. Moore*; Paramatta, "Blood-wood," *Woolfs*; Twofold Bay, *F. Muell.*

It is possible that some of the specimens here referred may belong to *E. citriodora*, or the northern ones to *E. terminalis*, both of which it is often very difficult to distinguish from *E. corymbosa*. The figure usually quoted of *E. corymbosa*, *Cav. Ic.* iv. t. 340, is a very different one, and looks much more like *E. paniculata*.

125. *E. citriodora*, *Hook. in Mitch. Trop. Austr.* 235. A tree with a smooth bark (*F. Mueller*), the foliage emitting a strong odour of citron when rubbed (*Mitchell*), evidently very closely allied to *E. corymbosa*. In the imperfect state of our specimens (in leaf only, with loose fruits or in young bud), it can only be distinguished from that species by the veins of the leaves rather more distinct, the pedicels shorter, the fruit scarcely so large, contracted at the orifice, but without so distinct a neck, and by the seeds almost equally large, but very obscurely or not at all winged.—*F. Muell. Fragm.* ii. 47.

Queensland. Balmy Creek, *Mitchell*; Wide Bay, *C. Moore*. It is possible also that some of the Brisbane specimens may be referable rather to this than to *E. corymbosa*.

Woolfs's "Spotted Gum," from Paramatta, is very much like *E. citriodora*.

126. *E. terminalis*, *F. Muell. in Journ. Linn. Soc.* iii. 89. A tree, very closely allied to *E. corymbosa*, and often scarcely to be distinguished from it in the dried specimens. It is generally of a paler or more glaucous colour, the leaves usually narrower with less conspicuous veins, the operculum very obtuse, hemispherical and not showing the junction with the calyx-tube till just as it is detached, the fruit narrower, more oblong and less urceolate, that is, contracted at the orifice without so distinct a neck; it varies in size from about 7 lines to nearly 1 in. long. Seeds with a rather long wing.—*E. polycarpa*, *F. Muell. in Journ. Linn. Soc.* iii. 88.

N. Australia. Arnhem's Land and Gulf of Carpentaria, *F. Mueller*.

Queensland. Albany Island, *W. Hill*; Curtis and Gloucester islands, *Henne*; Edgecombe Bay and Rockhampton, *Dallachy*, also *Bowman*; Endeavour river, *Banks and Solander*.

A specimen in fruit only from Careening Bay, on the N.W. coast, *A. Cunningham*, resembles this rather than *E. pyrophora*.

127. *E. dichromophloia*, *F. Muell. in Journ. Linn. Soc.* iii. 89. A moderate-sized or large tree, the bark smooth, ash-grey, at length separating from the inner reddish bark (*F. Mueller*). Leaves in the imperfect specimens very long lanceolate, narrow, thick, with numerous, very fine, close, parallel veins, the intramarginal one scarcely distant from the edge. Umbels several-flowered, forming loose, terminal, corymbose panicles. Young buds obovoid, with a very short obtuse operculum; perfect flowers unknown. Anthers of *E. corymbosa*. Fruit urceolate-globose, with a contracted neck, smooth, attaining sometimes $\frac{1}{2}$ in. diameter, but mostly much smaller; the rim thin, the capsule sunk. Perfect seeds broadly winged on one side.

N. Australia. Islands of the Gulf of Carpentaria, *R. Brown*; Abel Tasman, M'Arthur and Roper rivers, *F. Mueller*. It appears to differ but slightly from *E. terminalis* in the size and shape of the fruits, and perhaps in the bark.

128. *E. pyrophora*, *Benth.* Nearly allied to the preceding four species, but apparently to be distinguished, unless all be considered as forms of *E. corymbosa*. Leaves long, narrow, and thicker than in any of them. Inflorescence the same. Buds obovoid-pear-shaped, the very obtuse operculum undistinguishable from the calyx-tube till it separates, and then often tearing off irregularly. Flowers larger than in *E. terminalis*, the calyx-tube very broad and open, varying from 4 to 6 lines diameter. Stamens of the allied species. Fruit globose or slightly ovoid, contracted at the orifice, without a

distinct neck, the rim thin, the capsule sunk. Seeds apparently winged, but not seen perfect.

N. Australia. Nichol Bay, *Gregory's Expedition*; Upper Victoria river and Dépôt Creek, *F. Mueller*, also with rather smaller flowers, Depuech Island, *Bynoe*.

129. ***E. maculata*, Hook. Ic. Pl. t. 619.** A lofty tree with a smooth bark falling off in patches so as to give the trunk a spotted appearance. Leaves ovate-lanceolate or lanceolate, straight or falcate, acuminate, mostly 4 to 6 in. long or even more, with numerous parallel but rather oblique veins, not so close as in the preceding species, and rather coarse, the intramarginal one close to the edge. Umbels 3-flowered, usually several together, on short leafless branches, forming a panicle or corymb. Peduncles and pedicels short and thick, scarcely angular. Calyx-tube, in the young bud shortly cylindrical, when open broadly turbinate, 3 to 4 lines diameter. Operculum hemispherical, much shorter than the calyx-tube, the outer one much thicker and more persistent than in most species where it has been observed, and usually umbonate or shortly acuminate, the inner one (corresponding to the single one of most species) thin, obtuse, smooth, and shining. Stamens attaining 4 or 5 lines; anthers ovate with parallel distinct cells opening longitudinally. Ovary flat-topped. Fruit ovoid-urceolate, usually about $\frac{1}{2}$ in. long, and nearly as much in diameter, the rim narrow, the capsule deeply sunk.—*F. Muell. Fragm. ii. 47*; *E. variegata*, *F. Muell. in Journ. Linn. Soc. iii. 88*.

Queensland. Brisbane river, *F. Mueller*.

N. S. Wales. "Spotted Gum" of Maitland, *Backhouse*; common in the Liverpool district, *Woolfs*; above Paramatta, *Cayley*.

130. ***E. eximia*, Schau. in Walp. Rep. ii. 925.** A large tree. Leaves falcate-lanceolate, acuminate, mostly 4 to 6 in. long, with numerous veins, fine and parallel, but scarcely visible owing to the thick coriaceous texture. Flowers several together, closely sessile in heads, which are usually arranged on thick angular or flattened peduncles, in terminal corymbs or panicles. Calyx-tube thick, obconical, somewhat angular, much tapering at the base, 3 to 4 lines long. Operculum broadly conical or shortly acuminate, always much shorter than the calyx-tube, and double, as in *E. maculata*, but the inner one not readily separable in the dried specimens till the flower is ready to open. Stamens 3 to 4 lines long; anthers ovate-oblong, the cells parallel, opening longitudinally. Ovary short, flat-topped. Fruit urceolate, $\frac{3}{4}$ to 1 in. long, the rim thin, the capsule deeply sunk.

N. S. Wales. Banks of the river Grose, *R. Brown*; "Bloodwood" of the Blue Mountains, *Miss Atkinson, Woolfs*. This is evidently a very distinct species, more nearly allied to *E. maculata*, than to the Port Jackson "Blood-wood" (*E. corymbosa*), but different from both. I have not been able quite to satisfy myself of the structure of the operculum, which would require the examination of living specimens.

SUBSERIES IX. EUDESMIÆ.—Leaves mostly opposite or nearly so. Peduncles usually 3-flowered. Calyx with 4 teeth, more or less conspicuous below the globular hemispherical or flattened operculum. Stamens sometimes very shortly united in 4 clusters, alternating with the calyx-teeth.

131. ***E. erythrocorys*, F. Muell. Fragm. ii. 33.** A shrub of 8 to 10 . (*Oldfield*), or a tree of 20 to 30 ft. (*Drummond*). Leaves mostly opposite

or nearly so, or the upper ones alternate, all petiolate, long-lanceolate or broadly linear, often above 6 in. long, rigid, but with the oblique rather irregular veins conspicuous on both sides, the intramarginal one near the edge. Peduncles axillary or lateral, very thick, flat, and broad, $\frac{1}{2}$ to 1 in. long, bearing each 3 large flowers, nearly sessile or tapering into short, thick, flattened pedicels. Calyx-tube turbinate, very thick, irregularly ribbed, $\frac{1}{2}$ to $\frac{3}{4}$ in. long, and nearly $\frac{3}{4}$ in. diameter at the top, with 4 more or less prominent angles, terminating in exceedingly short, obtuse, scarcely prominent teeth. Operculum red, thick and fleshy, depressed and flat-topped, broader and shorter than the calyx-tube, obtusely square or almost 4-lobed, divided into 4 quarters by raised ribs, forming a cross on the top, each quarter transversely wrinkled, with a raised rib along the centre, opposite to the calyx-teeth. Stamens very numerous, inflected, forming 4 bundles alternating with the calyx-teeth, the claw or entire part very short and broad, or 4 clusters if the claw be considered as a mere dilatation or lobe of the margin of the staminal disk. Ovary much depressed, flat-topped. Fruit nearly hemispherical, ribbed, 1 to $1\frac{1}{2}$ in. diameter, the margin of the calyx horizontally dilated, the disk very broad and obtusely prominent, giving it the shape of an old-fashioned hat, the capsule depressed in the centre, the valves not raised.

W. Australia. Stony plains, Murchison river, "Illyarie" of the natives, *Oldfield*; limestone hills, west of the Valley of the Lake, *Drummond*, 6th Coll. n. 70, who describes it in Hook. Kew Journ. v. 121, as one of the finest of the genus, with its scarlet cups and fine yellow flowers (*i.e.* stamens).

132. **E. tetragona**, *F. Muell. Fragm.* iv. 51. Varying from a low scrubby shrub, densely covered with a white meal, to a small tree, of 20 to 25 ft., the specimens often entirely deprived of the whiteness; branches mostly 4-angled or almost 4-winged, rarely terete. Leaves mostly opposite or nearly so or the upper ones alternate, from broadly ovate and very obtuse to lanceolate-falcate and almost acute, rarely above 4 in. long, thick and rigid, with diverging but rather distant veins, the intramarginal one at a distance from the edge. Peduncles axillary, short, thick, angular or flattened, with 3 or very rarely 4 or 5 rather large flowers, on thick angular or flattened pedicels. Calyx-tube campanulate, about 3 or rarely nearly 4 lines long and broad, with 4 minutely prominent teeth, sometimes very conspicuous, sometimes scarcely perceptible. Operculum depressed-hemispherical, shorter than the calyx-tube, smooth. Stamens 3 to 4 lines long, more or less distinctly arranged in 4 clusters or bundles, alternating with the calyx-tube, but the claws or dilatations of the disk very short or scarcely perceptible; anthers small, with parallel cells opening longitudinally. Fruit ovoid or nearly globular, truncate, contracted at the orifice, smooth or more or less ribbed, $\frac{1}{2}$ to $\frac{3}{4}$ in. diameter, the rim scarcely distinct; capsule sunk, usually 4-celled.—*Eudesmia tetragona*, R.Br. App. Flind. Voy. ii. 599. t. 3; Sweet, Fl. Austral. t. 21; *Eucalyptus pleurocarpa*, Schau. in Pl. Preiss. i. 132; *F. Muell. Fragm.* ii. 37.

W. Australia. In exposed barren places, near the shore, Lucky Bay, *R. Brown*; from the Stirling Range, eastward to Cape Arid, *Maxwell*, *Preiss*, n. 253, *Baxter*; *Drummond*, 4th Coll. n. 78, and others. *Oldfield* observes that from the abundance of essential oil this species contains, it is killed down to the ground by the periodical fires, when other plants are only a little scorched, and is thus generally to be found only in an untidy, ragged, scrubby form, but he had seen dead stems of 25 feet.

133. **E. eudesmioides**, *F. Muell. Fragm.* ii. 35. A shrub, attaining 10 ft., with a smooth bark (*Oldfield*). Leaves from broad-lanceolate and 4 to 5 in. long, to narrow-lanceolate and shorter, mostly mucronate-acute and often falcate, rigid, the veins rather numerous but oblique and anastomosing, very conspicuous in the narrow leaves, much less so in the larger ones, the intramarginal one usually distant from the edge. Peduncles axillary, very short, nearly terete, mostly 3-flowered. Peduncles short. Calyx-tube narrow-turbinate, $2\frac{1}{2}$ to nearly 3 lines long, with 4 minute teeth, sometimes prominent, sometimes scarcely conspicuous. Operculum short, depressed hemispherical, very obtuse and rather thick. Stamens 2 to 3 lines long, distinctly arranged in 4 clusters or bundles alternating with the calyx-teeth; anthers very small, nearly globular, with distinct parallel cells. Fruit ovoid or oblong, usually $\frac{1}{2}$ to nearly $\frac{3}{4}$ in. long, in some specimens (perhaps not perfect), contracted at the orifice, but usually cylindrical, the rim concave, not broad, the capsule slightly sunk, usually 3-celled.

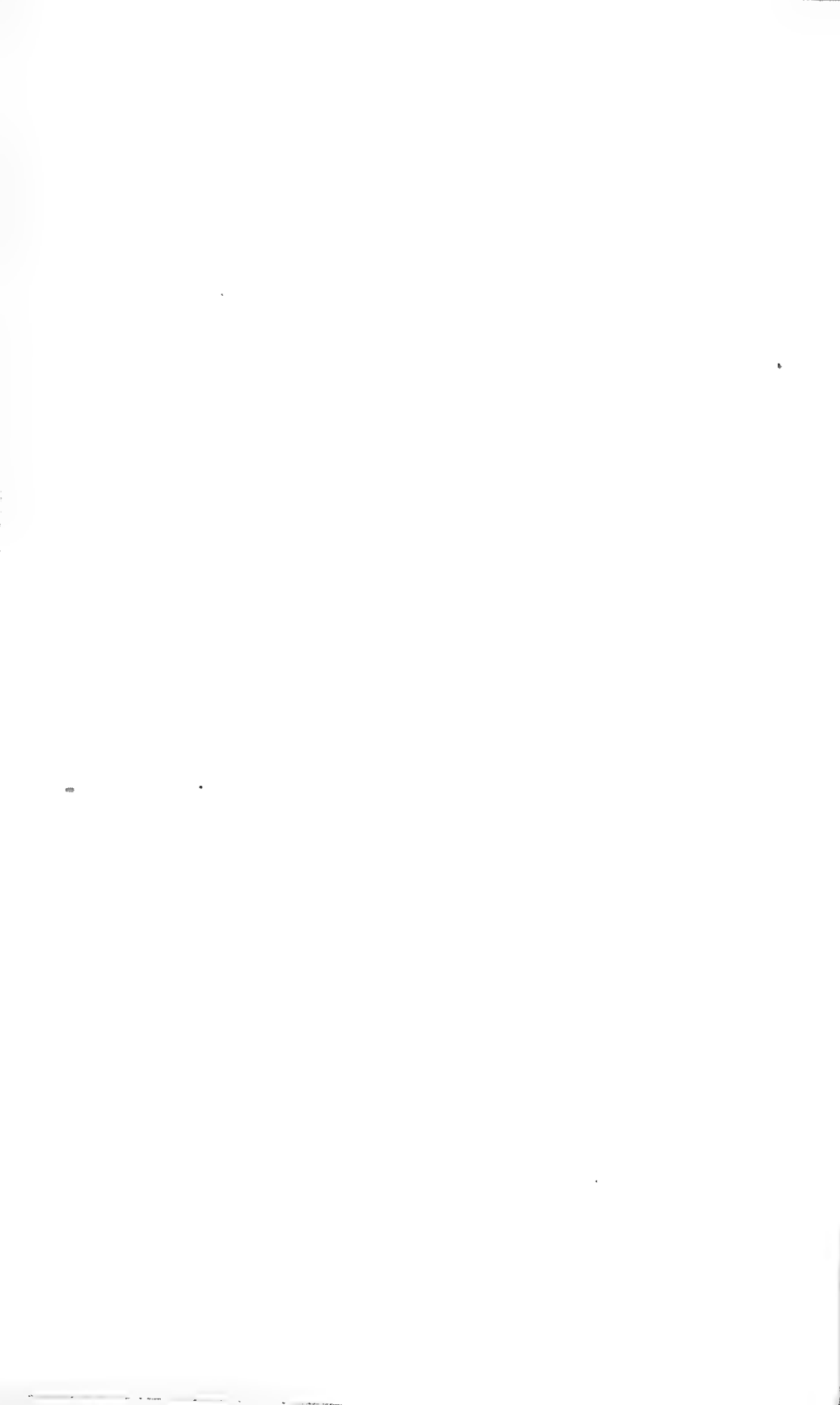
W. Australia. Sandy plains and limestone hills, Murchison river, *Oldfield*. Very near *E. tetragona* in characters, but the narrow leaves, small flowers, and narrow fruits, give it a very different aspect.

134. **E. odontocarpa**, *F. Muell. in Journ. Linn. Soc.* iii. 98. A shrub of 8 to 10 ft., with slender branches (*F. Mueller*). Leaves opposite or alternate, linear-lanceolate, mostly 3 to 5 in. long, with oblique anastomosing veins, inconspicuous at first, more prominent in the fruiting specimens, the intramarginal one near the edge. Peduncles axillary, short, each with 3 small flowers on short pedicels, but not seen expanded. Calyx-tube in the bud narrow-turbinate, about 2 lines long, with 4 small but prominent spreading teeth. Operculum hemispherical, very obtuse. Stamens apparently not in clusters; anthers small, with parallel cells. Fruit oblong-cylindrical, 4 to 5 lines long, not contracted at the orifice when fully ripe; rim narrow, concave, the capsule slightly sunk, 3- or 4-celled.

N. Australia. Sturt's Creek Desert, *F. Mueller*. Very much like some specimens of *E. eudesmioides*, but the stamens do not appear to be arranged in clusters, and at once distinguished from the following species by the very much smaller flowers.

135. **E. tetrodonta**, *F. Muell. in Journ. Linn. Soc.* iii. 97. A tree, with a whitish, fibrous, persistent bark (*F. Mueller*). Leaves opposite or alternate, long-lanceolate, acuminate, often falcate and above 6 in. long, coriaceous, but the numerous somewhat oblique veins prominent, the intramarginal one near the edge. Peduncles axillary or 2 or 3 together at the ends of the branches, short and thick but not dilated, each bearing 3 or very rarely 5 rather large flowers, on thick angular or flattened pedicels of 2 to 4 lines. Calyx-tube oboconical or turbinate, 3 to 4 lines long, with 4 rounded very obtuse teeth, slightly prominent on the bud. Operculum hemispherical or nearly globular, smooth. Stamens very numerous, the longest attaining 5 or 6 lines, not distinctly arranged in clusters; anthers oblong, with parallel cells opening longitudinally. Ovary flat-topped. Fruit oblong-cylindrical, $\frac{1}{2}$ to $\frac{3}{4}$ in. long, 4 to 6 lines diameter, not contracted at the orifice, the rim narrow but forming an acutely prominent ring, the capsule sunk, usually 3-celled.

N. Australia. Entrance to Victoria river and elevated sterile districts of Arnhem's



Land, "Stringy-bark," *F. Mueller*; N. coast, *A. Cunningham*; Port Essington, *Armstrong*.

SUBTRIBE V. METROSIDEREÆ.—Leaves opposite or rarely alternate, myrtle-like or large, penniveined. Flowers usually in little cymes corymbs or short racemes, axillary or in terminal panicles, rarely solitary in the axils and then pedicellate. Stamens numerous, free or rarely united in bundles opposite the petals; anthers versatile, the cells parallel, opening longitudinally. Ovules few or many in each cell of the ovary, in 2 or more rows. Embryo straight or slightly curved, the cotyledons longer than the radicle.

This subtribe has nearly the flowers and embryo of *Euleptospermeæ*, but a different inflorescence and a habit approaching that of *Myrtæ*.

31. TRISTANIA, R. Br.

(*Lophostemon*, *Schott*; *Tristaniopsis*, *Brongn. and Gris*.)

Calyx-tube turbinate-campanulate or open, adnate to the ovary at the base, the free part broad; lobes 5, short. Petals 5, broad, much imbricate. Stamens indefinite, more or less united in bundles opposite the petals, the filaments or free parts filiform, inflexed or rarely erect; anthers versatile, the cells parallel, opening longitudinally. Ovary inferior half superior or free except the broad base, but included in the calyx-tube, flat or convex on the top and very rarely depressed in the centre round the style, 3-celled, with several horizontal or recurved ovules in each cell; style filiform, with a more or less capitate stigma. Capsule adnate or almost free, enclosed in or protruding from the persistent calyx, opening loculicidally in 3 valves. Perfect seeds where known, few in each cell, linear-cuneate or expanded at the end into a flat wing; testa thin, embryo straight; cotyledons broad and folded over each other, as long as or longer than the radicle.—Tall shrubs or trees, Leaves alternate or irregularly verticillate at the ends of the branches, or in one species opposite, penniveined. Flowers small, yellow or white, in pedunculate axillary cymes. Bracts very deciduous or entirely wanting.

Besides the Australian species, the genus comprises at least two from New Caledonia and about four from the Indian Archipelago.

SECTION I. Neriophyllum.—Leaves opposite. Stamens erect, shortly and irregularly 5-adelphous. Ovary inferior, flat-topped, with very numerous ovules in each cell. Seeds unknown 1. *T. neriifolia*.

SECTION II. Lophostemon.—Leaves alternate. Stamens inflexed, 5-adelphous, with long claws. Ovary inferior, flat-topped, with very numerous horizontal or recurved ovules in each cell. Seeds linear-cuneate.

Staminal claws half as long as the petals. Flowers usually small (yellow?).

Calyx-lobes short and very obtuse 2. *T. suateolens*.

Staminal claws as long as the petals. Flowers few in the cyme, rather

large. Calyx-lobes lanceolate, acute 3. *T. conferta*.

SECTION III. Eutristania.—Leaves alternate. Stamens inflexed, 5-adelphous, with very short claws. Ovary adnate or half superior, ovules all reflexed. Seeds very flat or expanded at the end into a flat wing, the embryo in the thickened base.

Ovary adnate. Flowers small, white, and numerous 4. *T. lactiflua*.
Ovary half superior.

Stamens scarcely exceeding the petals. Seeds winged. Flowers yellow.

Flowers small and numerous. Calyx not 1 line diameter 5. *T. exiliflora*.

- Flowers few. Calyx $1\frac{1}{2}$ to 2 lines diameter 6. *T. laurina*.
 Stamens much longer than the petals, clustered but almost free. Seeds
 not winged 7. *T. psidioides*.
 (Doubtful species. Leaves opposite. Fruit of *T. psidioides* 8. *T. umbrosa*.)

SECTION I. NERIOPHYLLUM.—Leaves opposite. Stamens erect, shortly and irregularly 5-adelphous. Ovary inferior, flat-topped, with very numerous ovules in each cell. Seeds unknown.

1. ***T. neriifolia***, *R. Br. in Ait. Hort. Kew. ed. 2. iv. 417*. A tall slender shrub or small tree, glabrous or the young shoots and under side of the leaves minutely glaucous-pubescent. Leaves opposite, lanceolate, acute, narrowed into a short petiole, nerveless except the prominent midrib, $1\frac{1}{2}$ to 3 in. long. Flowers yellow, in opposite axillary cymes, but forming usually a terminal corymb, the central shoot not growing out till after the flowering. Calyx-tube turbinate, 5-angled, 1 to $1\frac{1}{2}$ lines long, lobes ovate, as long as the tube. Petals often above 2 lines long. Stamens erect, longer than the petals, almost 1-seriate, more or less distinctly but irregularly united in clusters of 3 to 5 each, opposite the petals. Ovary completely adnate, glabrous and concave on the top, with a deep central depression round the style. Ovules exceedingly numerous in each cell, covering a peltate placenta. Fruiting-calyx about 2 lines long, the capsule much shorter. Seeds not seen.—*DC. Prod. iii. 210*; *Bonpl. Pl. Malm. t. 30*; *F. Muell. Fragm. iv. 56*; *Lodd. Bot. Cab. t. 157*; *Melaleuca neriifolia*, *Bot. Mag. t. 1058*; *M. salicifolia*, *Andr. Bot. Rep. t. 485*; *Tristania salicina*, *A. Cunn. in Bot. Reg. under n. 1839*.

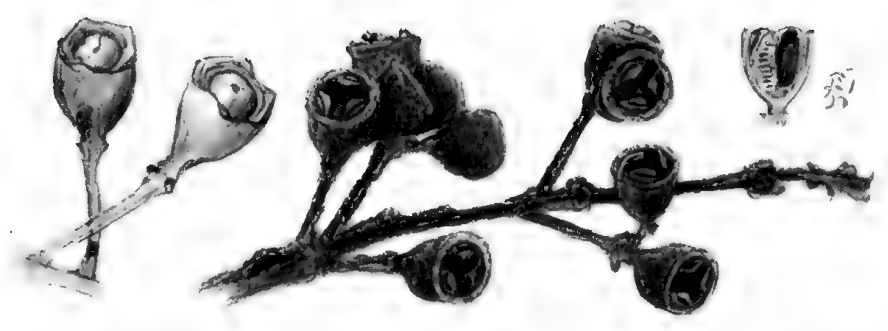
N. S. Wales. Port Jackson to the Blue Mountains, *R. Brown, Sieber, n. 219*, and others; southward to Illawarra, *Shepherd*.

SECTION II. LOPHOSTEMON.—Leaves alternate. Stamens inflexed, 5-adelphous, with long claws. Ovary inferior, flat-topped, with very numerous ovules in each cell. Seeds linear-cuneate, not expanded at the end.

2. ***T. suaveolens***, *Sm. in Rees Cycl. xxxvi*. A shrub or tree, more or less glaucous or hoary, or the young shoots hirsute, rarely quite glabrous. Leaves alternate, petiolate, ovate-elliptical, ovate-lanceolate or elliptical-oblong, obtuse or acuminate, more or less distinctly penniveined and reticulate, in some specimens $1\frac{1}{2}$ to 3 in., in others 3 to 6 in. long. Flowers usually small, in axillary cymes, the common peduncle $\frac{1}{4}$ to $\frac{1}{2}$ in. long, more or less flattened. Calyx-tube campanulate, usually hoary-pubescent, 1 to $1\frac{1}{2}$ lines long; lobes very short and broad. Petals $1\frac{1}{2}$ lines diameter. Staminal bundles about as long as the petals, the claws half as long as the petals, rather broad, with numerous inflexed filaments. Ovary wholly adnate, flat or concave at the top and glabrous, not depressed round the style; ovules very numerous in each cell, on an oblong reflexed placenta. Fruiting-calyx very open, 2 to nearly 4 lines diameter, the capsule not exceeding the tube. Seeds linear-cuneate, not winged; cotyledons rather broad and folded.—*DC. Prod. iii. 210*; *Melaleuca suaveolens*, *Gærtn. Fruct. t. 173. t. 35*; *Tristania depressa*, *A. Cunn. in Bot. Reg. under n. 1839*; *DC. Prod. iii. 210*; *T. rhytiphloia*, *F. Muell. Fragm. i. 81*.

N. Australia. Victoria river and Sea range, *F. Mueller*; Gulf of Carpentaria, *R. Brown*.
Queensland. Cape York, *M'Gillivray*; Endeavour river, *Banks and Solander*; Re-





pulse Bay, *A. Cunningham*; Rockingham Bay, Rockhampton, *Dallachy*; Burnett river, *F. Mueller*; Mount Elliott, *Fitzalan*; Brisbane river, Moreton Bay, etc., *Backhouse*, *W. Hill*, and others.

N. S. Wales. Richmond and Clarence rivers, *Beckler*.

Var. *P. grandiflora*. Very hoary-tomentose. Flowers nearly twice as large. Petioles of the leaves very short.—Attack Creek, *M'Douall Stuart*. Perhaps a distinct species, but there is but a single specimen.

3. ***T. conferta***, *R. Br. in Ait. Hort. Kew. ed. 2. iv. 417*. A tall tree, with a smooth brown deciduous bark and dense foliage, the young shoots often clothed with spreading hairs, otherwise glabrous except the inflorescence, the buds of the succeeding year covered with large imbricate coloured scales. Leaves alternate, crowded at the ends of the branches so as to appear verticillate, petiolate, ovate or ovate-lanceolate, acuminate or rarely almost obtuse, usually 3 to 6 in. long, penniveined and minutely reticulate underneath. Flowers in cymes of 3 to 7, usually on the young wood below the cluster of leaves, the floral leaves mostly abortive, the peduncle flattened, $\frac{1}{4}$ to $\frac{1}{2}$ in. long, or rarely elongated. Calyx-tube more or less pubescent or hirsute, turbinate, $1\frac{1}{2}$ to near 3 lines long; lobes narrow, acute, nearly as long as the tube. Petals undulate, often 3 lines diameter. Staminal bundles often $\frac{1}{2}$ in. long, inflexed, the claws long and linear, with numerous short slender filaments nearly along their whole length; anthers very small. Ovary wholly adnate, flat-topped without any central depression; ovules exceedingly numerous in each cell, covering an oblong reflexed placenta. Fruiting-calyx 3 to 4 lines diameter, hemispherical or cup-shaped, truncate, smooth, the capsule level with the orifice or shortly exceeding it. Seeds linear-cuneate, not winged; cotyledons folded.—*DC. Prod. iii. 210*; *F. Muell. Fragm. iv. 57*; *T. subverticillata*, *Wendl. in Ott. Dietr. Allg. Gartenz. i. 186*; *T. macrophylla*, *A. Cunn. in Bot. Reg. t. 1839*; *F. Muell. Fragm. i. 82*; *Lophostemon arborescens*, *Schott in Wien. Zeitschr. iii. (1830) 772*.

N. Australia. Port Essington, *Armstrong*.

Queensland. Sandy Cape and Keppel Bay, *R. Brown*; mouths of the Bardekin river, *F. Mueller*; Rockhampton, Edgecombe Bay, etc., *Dallachy*, *Henne*; Brisbane river, Moreton Bay, *A. Cunningham* and others.

N. S. Wales. Hastings river, *Beckler*.

SECTION III. EUTRISTANIA.—Leaves alternate. Stamens inflexed, 5-adelphous with very short claws, or clustered only. Ovary adnate or half superior, ovules all reflexed. Seeds very flat or expanded at the end into a flat wing.

To this section belong the Asiatic species, as well as the New Caledonian ones forming Brongniart and Gris' genus *Tristaniopsis*.

4. ***T. lactiflua***, *F. Muell. Fragm. i. 82*. A tree attaining 30 ft., glabrous or the young shoots, under side of the leaves, and inflorescence glaucous-pubescent. Leaves alternate, often almost verticillate at the ends of the branches, ovate or broadly ovate-lanceolate, obtuse or acute, penniveined, 3 to 6 in. long, on a petiole often of 1 in. Flowers white, small and very numerous, in axillary cymes, the common peduncle often 1 to 2 in. long. Calyx-tube broad, scarcely 1 line long, with very short rounded lobes as in *T. suaveolens*. Petals about $1\frac{1}{2}$ lines diameter. Staminal bundles about as long as the petals, inflexed, the claws short and broad, each with 15 to 20

filaments. Ovary wholly adnate, concave at the top without any central depression. Ovules reflexed, not so numerous as in *T. suaveolens*. Fruit not seen.

N. Australia. Foot of M'Adam Range, *F. Mueller*; Port Essington, *Armstrong*.

5. ***T. exiliflora***, *F. Muell. Fragm.* v. 11. Glabrous or the inflorescence minutely hoary-pubescent. Leaves alternate, lanceolate or elliptical, almost acute, much narrowed into the petiole, penniveined, 2 to 4 in. long. Flowers yellow, small, rather numerous, in small axillary shortly pedunculate cymes, the pedicels at length longer than the calyx. Calyx-tube turbinate or almost hemispherical, rather above $\frac{1}{2}$ line long, lobes ovate, rather shorter. Petals about $\frac{1}{2}$ line diameter. Staminal bundles inflexed, not exceeding the petals, the claws short, each with 2 to 4 filaments, often hairy at the base. Ovary half adnate, the summit very convex, pubescent, not depressed round the style, with 3 to 6 pendulous ovules in each cell. Fruit obovoid-globular, about 2 lines diameter, adnate at the base only, filling the calyx-tube and protruding considerably beyond it. Seeds obovoid, not much flattened, the testa sometimes with a short appendage or quite wingless, often lined with a granular substance. Cotyledons broad, deeply lobed and closely folded over the radicle.

Queensland. Rockingham Bay, *Dallachy*. The species is very closely allied to *T. laurina*, with the same foliage, floral characters, and fruit, but with the flowers as small as in *T. lactiflua*, and the seeds, as far as known, not winged.

6. ***T. laurina***, *R. Br. in Ait. Hort. Kew. ed. 2.* iv. 417. A somewhat scrubby shrub in exposed localities, becoming in moist situations a tree, often of great height, the young shoots more or less glaucous or silky-pubescent, especially the under side of the leaves, the older foliage glabrous. Leaves alternate, lanceolate, elliptical or obovate-lanceolate, acuminate, penniveined, 2 to 4 in. long, narrowed into a petiole. Flowers yellow, in short axillary cymes, on a very short common peduncle, the pedicels rarely longer than the calyx. Calyx-tube broadly campanulate, $1\frac{1}{2}$ to $2\frac{1}{2}$ lines diameter, lobes small, triangular, distant at the time of flowering although imbricate in the young bud. Petals $1\frac{1}{2}$ to 2 lines long, usually undulate. Staminal bundles inflexed, scarcely exceeding the petals, the claws very short, each with 15 to 20 filaments. Ovary half-adnate, the summit very convex, hirsute, not depressed round the style, with several (about 10) reflexed ovules in each cell. Capsule obovoid or almost globular, 3 to 5 lines diameter, adnate at the base only, filling the calyx-tube and protruding considerably beyond it. Seeds oblong, flat, laterally attached near the top, the upper part thin and winglike, embryo in the lower thickened portion; cotyledons deeply cordate and folded over each other; radicle superior, rather long.—*DC. Prod.* iii. 210; *F. Muell. Fragm.* i. 81; *Melaleuca laurina*, *Sm. in Trans. Linn. Soc.* iii. 275.

Queensland. Brisbane river, Moreton Bay, *A. Cunningham*, *Fraser*, and others.

N. S. Wales. Port Jackson to the Blue Mountains, *R. Brown*, *Sieber*, n. 220, and others; northward to Hastings, Macleay, and Clarence rivers, *Beckler*; southward to Illawarra, *M'Arthur* and others, and Twofold Bay, *F. Mueller*.

Victoria. Banks of rivers, Gipps' Land, *F. Mueller*.

7. ***T. psidioides***, *A. Cunn. in Bot. Reg. under n.* 1839. A small tree, the branchlets and inflorescence hoary-tomentose. Leaves alternate, petio-



late, oval-elliptical, $1\frac{1}{2}$ to $2\frac{1}{2}$ in. long, obtuse or almost acute, narrowed at the base, penniveined, glabrous above, white underneath with a close tomentum. Flowers in dense corymbose cymes in the upper axils or almost terminal. Calyx broadly turbinate, tapering into a short pedicel, the tube about $1\frac{1}{2}$ lines long, the lobes lanceolate, about as long as the tube. Petals short and broad, pubescent outside. Stamens free or nearly so but in 5 clusters, about $\frac{1}{2}$ in. long, the filaments slender. Ovary almost inferior with a prominent convex summit, with about 6 closely-packed flat ovules laterally attached but pendulous from a short placenta. Fruit nearly globular, about 3 lines diameter, free except the broad base, adnate to and resting on the flattened calyx-tube, the lobes spreading or deciduous. Seeds very flat, but not winged.

N. Australia. Brunswick Bay, N.W. coast, *A. Cunningham*; islands of the N. coast, *R. Brown*.

8. **T. (?) umbrosa**, *A. Cunn. in Bot. Reg. under n. 1839*. The specimens are in fruit only and much resemble those of *T. psidioides*, except that they are nearly glabrous, the leaves are not white underneath and all opposite. Fruits and seeds of *T. psidioides*.

N. Australia. Hunter's River, York Sound, N.W. coast, *A. Cunningham*.

32. SYNCARPIA, Ten.

(*Kamptzia*, *Nees*.)

Calyx-tube turbinate or campanulate, adnate to the ovary at the base, the free part erect or dilated; lobes 4 or rarely 5, persistent. Petals 4 or rarely 5, spreading. Stamens indefinite, free, in 1 or 2 series, sometimes interrupted between the petals, filaments filiform; anthers versatile, cells parallel, opening longitudinally. Ovary inferior, flat-topped or convex, scarcely depressed round the style, 2- or 3-celled, with 1 or several ovules in each cell, erect on a basal placenta; style filiform with a small stigma. Capsule included in and adnate to the calyx-tube, opening loculicidally in 2 or 3 valves. Seeds linear-cuneate, testa thin, embryo straight, cotyledons plano-convex, longer than the radicle.—Trees. Leaves opposite, penniveined. Flowers in dense globular heads, either solitary on axillary peduncles or forming terminal panicles.

The genus consists of two species exclusively Australian, and differing perhaps as much from each other as either one does from *Metrosideros*.

Calyxes connate. Petals broad. Ovary 3-celled, with several ovules in

each cell	1. <i>S. laurifolia</i> .
Calyxes free. Petals narrow. Ovary 2-celled, with 1 ovule in each cell	2. <i>S. leptopetala</i> .

1. **S. laurifolia**, *Ten. in Mem. Soc. Ital. Sc. Moden.* xxii. t. 1. A slender tree, the young shoots and under side of the leaves more or less hoary-pubescent or glaucous. Leaves appearing sometimes in whorls of 4 from 2 pairs being close together, from broadly ovate to elliptical-oblong, obtuse or obtusely acuminate, glabrous above, 2 to 3 in. long, on petioles of $\frac{1}{4}$ to $\frac{1}{2}$ in. Flowers white, united, 6 to 10 together in globular heads, on peduncles of $\frac{3}{4}$ to 1 in. at the base of the new shoots, with 2 to 4 bracts close under the head, either short and scale-like or leaf-like and exceeding the flowers.

Calyx connate at the base, the free parts broadly campanulate, softly hoary-pubescent, 1 to $1\frac{1}{2}$ lines long, lobes short, broad and obtuse. Petals broadly ovate or orbicular, about $1\frac{1}{2}$ lines long. Stamens 3 to 4 lines long, in about 2 rows round a flat disk fully 3 lines diameter. Ovary flat-topped, tomentose, 3-celled, with rather numerous ovules in each cell, erect on an oblong placenta. Fruiting-heads about $\frac{1}{2}$ in. diameter, the calyxes connate to about the middle.—F. Muell. *Fragm.* i. 79; *Metrosideros glomulifera*, Sm. in *Trans. Linn. Soc.* iii. 269; DC. *Prod.* iii. 225; *Tristania albens*, A. Cunn. in *Bot. Reg.* under n. 1839; DC. *Prod.* iii. 210; *Kamptzia albens*, Nees in *Nov. Act. Nat. Cur.* xviii. *Suppl. Præf.* 9. t. 1; *Metrosideros procera* and *M. propinqua*, Salisb. *Prod.* 351?

Queensland. Shoalwater Bay Passage, R. Brown; Moreton Bay, F. Mueller.

N. S. Wales. Port Jackson to the Blue Mountains, Burton, A. Cunningham, Miss Atkinson; northward to Hastings river, Beckler; southward to Illawarra, A. Cunningham.

Var. *glabra*. Quite glabrous, even the calyx. Flowers rather small.—Hastings river, Beckler.

2. **S. leptopetala**, F. Muell. *Fragm.* i. 79. A tree of 50 to 60 ft., the young shoots, under side of the leaves, and inflorescence minutely and closely tomentose or almost scurfy, or at length glabrous, the young branches angular. Leaves ovate-elliptical or ovate-lanceolate, acutely acuminate, pinnely, glabrous above, 2 to 4 in. long, tapering into rather short petioles. Flowers small and numerous, in dense globular heads but quite free from each other, the common peduncles slender, 1 to $1\frac{1}{2}$ in. long, in terminal clusters or panicles. Bracts very small, linear or lanceolate. Calyx-tube pubescent or nearly glabrous, membranous, turbinate-campanulate, 1 to $1\frac{1}{2}$ lines long; lobes short, rounded. Petals narrow, $\frac{3}{4}$ line long. Stamens in a single row round the margin of the calyx-tube but interrupted between the petals, 3 to 4 lines long. Ovary convex, pubescent, 2-celled, with 1 erect ovule in each cell.

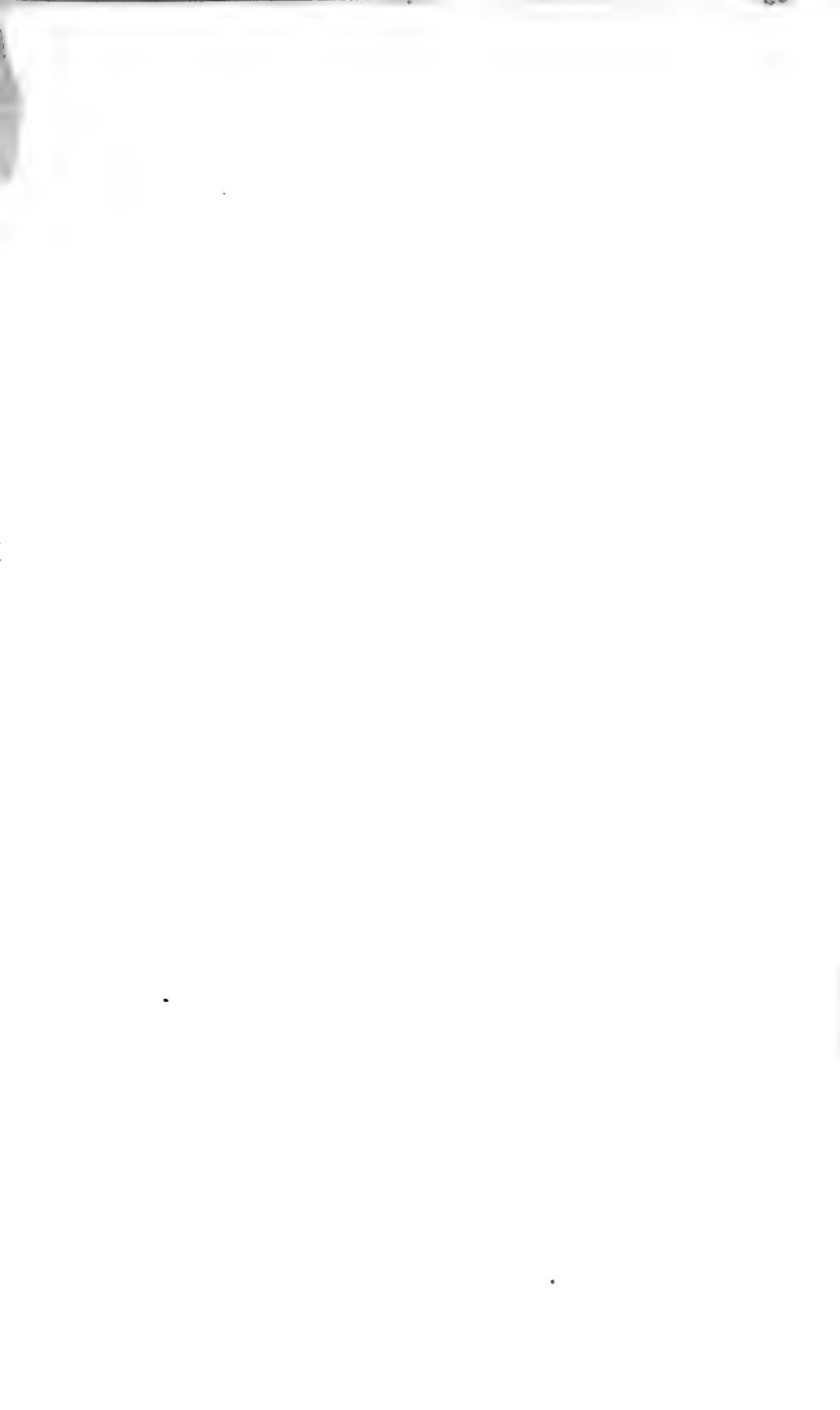
Queensland. Brisbane river, Moreton Bay, F. Mueller, C. Moore, and others.

N. S. Wales. In the interior, A. Cunningham (in Oxley's 2nd Expedition).

The great difference in the ovary, the free flowers, and the habit, which is that of a *Calycanthus* or an *Adina*, might perhaps justify the considering this as generically distinct from *S. laurifolia*, but the fruit is unknown, and perhaps both are too nearly allied to *Metrosideros*.

33. LYSICARPUS, F. Muell.

Calyx-tube campanulate, adnate to the ovary at the base; lobes 5, small, almost valvate. Petals 5, spreading. Stamens indefinite, free or nearly so, in 2 or more series interrupted opposite the sepals, the inner ones shorter, a few of the outer ones with reniform indehiscent anthers, the others with versatile anthers, the cells parallel, opening longitudinally. Ovary enclosed in the calyx-tube, but free except the broad base, tapering above, but with a distinct depression round the style, 3-celled with numerous ovules in each cell, erect on a basal placenta; style filiform, with a capitate almost 3-lobed stigma. Capsule oblong, protruding from the persistent calyx, opening loculicidally in 3 valves. Seeds . . .—Tree. Leaves opposite or whorled, narrow. Flowers polygamous, the males in irregular cymes, the hermaphrodites often solitary.



The genus is limited to the single Australian species. It is very nearly allied to *Metrosideros*.

1. **L. ternifolius**, *F. Muell. in Trans. Phil. Inst.* ii. 68. A tree attaining about 30 ft., with a soft thick fibrous bark, the young branchlets and inflorescence softly tomentose-pubescent. Leaves opposite or in whorls of 3, narrow-linear, mucronate-acute or rarely obtuse, $1\frac{1}{2}$ to 3 in. long, with closely revolute margins, shining above, whitish-pubescent or at length glabrous underneath. Male flowers in irregular terminal or almost terminal leafy cymes, the hermaphrodite often solitary on opposite pedicels below the ends of the branches. Calyx-tube softly tomentose, about $1\frac{1}{2}$ lines long, broader in the hermaphrodite than in the male flowers. Petals above 1 line diameter, orbicular, pubescent or ciliolate. Stamens exceeding the petals. Ovary pubescent. Capsule often twice as long as the calyx.—*Tristania angustifolia*, Hook. in Mitch. Trop. Austr. 198.

Queensland. On the Maranoa, *Mitchell*; Darling Downs and between the Mackenzie and Dawson rivers, *F. Mueller*.

34. METROSIDEROS, Banks.

(*Nania*, *Miq.*)

Calyx-tube (in the Australian species) campanulate, adnate to the ovary at the base, lobes 5, rarely 4, slightly imbricate. Petals 5, rarely 4, spreading. Stamens indefinite, free, in 1 or more series, exceeding the petals, filaments filiform; anthers versatile, the cells parallel, opening longitudinally. Ovary included in the calyx-tube, inferior or half superior, slightly depressed round the style, 3-celled, with numerous ovules in each cell closely packed in several series, on a peltate or oblong adnate placenta; style filiform, with a small stigma. Capsule inferior, half superior, or almost free, but surrounded by or enclosed in the persistent calyx-tube, opening loculicidally in 3 valves or rarely irregularly dehiscent. Seeds usually numerous, flat, cuculate or linear, erect; embryo straight, the cotyledons flat or folded, longer than the radicle.—Shrubs or trees, rarely climbing. Leaves opposite, pinniveined. Flowers often showy, in dense terminal trichotomous cymes, or rarely axillary.

The genus comprises several very variable species dispersed over the islands of the Pacific and Indian Archipelago from New Zealand to the Sandwich Islands, with one somewhat anomalous species from South Africa. The single Australian species belongs to a group represented only by one other one from the Archipelago and generically distinguished by *Miquel* under the name of *Nania*, chiefly on account of its flat broad seeds.

1. **M. eucalyptoides**, *F. Muell. Fragm.* i. 243. A moderate-sized tree, glabrous or the young shoots glaucous or slightly tomentose. Leaves closely sessile and somewhat cordate, broadly elliptical-oblong, obtuse, mostly 4 to 8 in. long, thinly coriaceous. Flowers without the stamens rather small, in rather dense cymes in the upper axils. Bracts very small and narrow. Pedicels slender, 2 to 4 lines long. Calyx very open, about 2 lines diameter, lobes distant, narrow. Petals linear or oblong, narrowed into a distinct claw. Stamens numerous, about $\frac{1}{2}$ in. long. Ovary half superior. Capsule nearly globular, attached only by the broad base to the persistent calyx. Ovules very numerous, flat, amphitropous, erect, densely imbricate

and completely covering the scarcely prominent placenta. Seeds very flat, obovate-falcate, but not seen quite ripe.—*Xanthostemon eucalyptoides*, F. Muell. *Fragm.* i. 81.

N. Australia. Arid banks of the Fitzmaurice river, *F. Mueller*.

M. aromatica, Salisb. *Prod.* 351, from Port Jackson, *Burton*, is evidently not a *Metrosideros*, as the genus is now constituted, but I have not met with any specimens corresponding to the imperfect diagnoses given.

35. *XANTHOSTEMON*, F. Muell.

(*Fremya*, *Brongn.* and *Gris.*)

Calyx-tube broadly campanulate or open, adnate to the ovary at the base; lobes 4 or 5, slightly imbricate, often unequal. Petals 4 or 5, spreading. Stamens indefinite, free or slightly united at the base, in one or more series much exceeding the petals; filaments often rigid; anthers versatile or, from a dilatation of the connective round the filament, apparently attached by the base, the cells parallel, opening longitudinally. Ovary enclosed in the calyx-tube, half-inferior or free except the broad base, 2- to 6-celled, with numerous ovules in each cell, closely packed in a single ring round a clavate or peltate placenta; style filiform with a small stigma. Capsule free except the broad base, seated on the expanded calyx, or half enclosed in the cup-shaped calyx-tube, opening loculicidally in 2 to 6 valves. Seeds flat or angular; testa thin; cotyledons broad, flat or folded over each other, longer than the straight or incurved radicle.—Trees or shrubs. Leaves alternate, pinniveined. Flowers in dense cymes on terminal or axillary peduncles, or (in species not Australian) solitary or nearly so. Bracts and bracteoles usually very small or none.

Besides the two Australian species there are a considerable number in New Caledonia. The genus has since been reunited by F. Mueller with *Metrosideros*, which it closely resembles. The constantly alternate leaves, with the insertion and arrangement of the ovules, seem, however, to justify the maintaining it either as a genus or section at least as distinct as *Syncarpia*, *Lysicarpus*, and the non-Australian *Cloezia*, *Tepualia*, and *Spermolepis*.

Leaves acuminate, 4 to 6 in. long. Calyx above 3 lines diameter, half enclosing the capsule	1. <i>X. chrysanthus</i> .
Leaves obtuse, 2 to 3 in. long. Calyx about 2 lines diameter, opening flat under the capsule	2. <i>X. paradoxus</i> .

1. *X. chrysanthus*, F. Muell. Herb. A tall handsome tree, the specimens quite glabrous. Leaves lanceolate or elliptical, acuminate or almost acute, 4 to 6 in. long, narrowed into a short petiole. Peduncles in the upper axils about $\frac{1}{2}$ in. long, bearing each a dense cyme of 5 to 10 rather large flowers of a golden-yellow. Calyx-tube broadly campanulate, 3 to 3 $\frac{1}{2}$ lines diameter, somewhat enlarged and half enclosing the fruit; lobes ovate-triangular, shorter than the tube, and half as long as the orbicular petals. Stamens 20 to 25, in a single series, the longest nearly 1 in. long; anthers oblong, versatile, the connective scarcely thickened. Ovary more than half-superior, usually 3-celled, with numerous flat ovules closely packed in a single whorl round a peltate somewhat clavate placenta. Style very long, not at all immersed. Capsule about 5 lines diameter. Seeds few perfect, flat, with a thin testa; cotyledons broad, 2-lobed, conduplicate, more or less en-

closing the incurved radicle; sterile seeds numerous, of the same shape, but hard and homogeneous.—*Metrosideros chrysantha*, F. Muell. Fragm. iv. 159.

Queensland. Along streams, Rockingham Bay, *Dallachy*.

2. **X. paradoxus**, F. Muell. Fragm. i. 80. A tall shrub or small tree, the inflorescence and under side of the leaves tomentose pubescent or glaucous, at length glabrous, the upper leaves assuming a yellowish hue in the dried state. Leaves obovate-oblong or elliptical, obtuse, mostly 2 to 3 in. long, narrowed into a short petiole. Cymes dense, terminal or in the upper axils. Calyx-tube broadly campanulate, about 2 lines diameter, opening flat under the fruit; lobes ovate-triangular, varying from $\frac{1}{2}$ to 1 line long. Petals ovate or orbicular, ciliate, $1\frac{1}{2}$ to 2 lines long. Stamens yellow, rigid, nearly $\frac{3}{4}$ in. long; anthers really attached at the back, but the thick fleshy connective enclosing the summits of the filament so as to make them appear attached by the base. Ovary nearly superior, 2- or 3-celled, the style quite terminal; ovules in a ring round the clavate placenta. Capsule globular or almost ovoid. Seeds as in *X. chrysanthus*, the broad cotyledons folded over the incumbent radicle.—*Metrosideros paradoxa*, F. Muell. Fragm. i. 243.

N. Australia. Montague Sound, N.W. coast, *A. Cunningham*; rocky hills on the Victoria river and Arnhem's Land, *F. Mueller*.

36. BACKHOUSIA, Hook. and Harv.

Calyx-tube turbinate or broadly campanulate, adnate to the ovary at the base; lobes 4, almost petal-like or scarious, persistent. Petals 4, shorter than or scarcely exceeding the calyx-lobes, usually persistent. Stamens indefinite, free, in several series; anthers versatile, the cells parallel, opening longitudinally. Ovary in the bottom of the calyx-tube, inferior or half-superior, 2-celled, with several ovules in each cell, recurved or pendulous, attached either in 2 rows to an axile placenta, or to a placenta pendulous from the apex of the cell; style filiform, with a small stigma. Capsule enclosed in the persistent calyx-tube or protruding from it, apparently indehiscent or separating into 2 cocci. Seeds obovoid or cuneate; embryo straight, cotyledons (where known) conduplicate and longer than the radicle.—Trees or shrubs. Leaves opposite, penniveined. Flowers in cymes sometimes reduced to heads or in umbels, on axillary peduncles often forming terminal leafy panicles. Bracts very deciduous.

The genus is confined to Australia, and may be considered in some measure as connecting the true *Myrtæe* with the *Leptospermeæ*, but is readily known by the calyx, ovary, and fruit.

Cymes dense, corymbose. Pedicels shorter than the calyx-tube.

Leaves ovate-acuminate. Calyx-lobes nearly equal 1. *B. myrtifolia*.

Leaves lanceolate or oblong-linear. Inner calyx-lobes large and petal-like 2. *B. angustifolia*.

Cymes umbel-like. Pedicels filiform, many times longer than the calyx-tube.

Leaves ovate-obtuse. Placentas axile 3. *B. sciadophora*.

Leaves ovate-lanceolate, acuminate. Placentas pendulous from the summit of the cell 4. *B. citrifodora*.

1. **B. myrtifolia**, Hook. and Harv. in *Bot. Mag.* t. 4133. A tall shrub or small tree, the young shoots and the under side of the leaves and the

inflorescence more or less pubescent or softly hirsute, the older foliage glabrous. Leaves ovate, acutely acuminate, penniveined, 1 to 2 in. long, narrowed into a petiole of 1 to 2 lines. Flowers white, in small cymes sometimes contracted into heads, on peduncles of $\frac{3}{4}$ to 1 in. at the base of the new shoots, forming terminal leafy panicles. Bracts narrow, falling off long before flowering. Calyx-tube turbinate, softly pubescent or rarely glabrous, nearly $1\frac{1}{2}$ lines long; lobes from ovate-oblong to lanceolate, petal-like but rigid, 2 lines or in large-flowered forms 3 lines long. Petals not half so long. Ovary inferior, slightly convex and villous on the top; ovules 8 to 10 in each cell, campylotropous, attached in two rows to a somewhat thickened placenta adnate to the axis. Fruit enclosed in the calyx-tube, but not seen ripe.—*F. Muell. Fragm. i. 78*; *B. riparia*, Hook. in Bot. Mag. under n. 4133.

Queensland. Moreton Bay, *W. Hill*; Pine river, *Fitzalan*.

N. S. Wales. Hawkesbury river, *R. Brown*; Port Jackson, *Burton*; Paramatta, *Woolfs*; Hastings river, *A. Cunningham*, *Beckler*; Macleay river, *Beckler*; Clarence river, *Wilcox*.

2. ***B. angustifolia***, *F. Muell. Fragm. i. 79*. A tall shrub, the young shoots and inflorescence minutely hoary-pubescent or tomentose, the adult foliage glabrous. Leaves lanceolate or narrow-oblong, obtuse or mucronate, very obliquely penniveined, 1 to $1\frac{1}{2}$ in. long. Flowers rather small, in cymes or heads of 3 to 9 each, on peduncles of $\frac{1}{2}$ in. or less in the upper axils, forming a divaricate leafy panicle. Calyx-tube turbinate, ribbed, pubescent, about 1 line long, outer lobes orbicular, as long as the tube, inner ones much larger and petal-like. Petals shorter than the inner calyx-lobes. Outer stamens above 2 lines long. Ovary inferior, convex and pubescent on the top; ovules about 6 in each cell, campylotropous, and attached in two rows to an axile placenta as in *R. myrtifolia*.

Queensland. Dawson river, *F. Mueller*.

3. ***B. sciadophora***, *F. Muell. Fragm. ii. 26, 171*. A tree, either glabrous or the young shoots minutely pubescent. Leaves broadly ovate, obtuse, 1 to $2\frac{1}{2}$ in. long, on short petioles. Flowers small, numerous, in umbel-like cymes or clusters on a common peduncle of $\frac{1}{2}$ to $\frac{3}{4}$ in. in the upper axils, the slender pedicels often $\frac{1}{2}$ in. long. Calyx-tube glabrous, broadly campanulate, about 1 line long; outer lobes rounded and rather shorter, the inner ones rather longer than the tube. Petals broad, slightly exceeding the calyx-lobes. Stamens about 2 lines long. Ovary semiadnate to the bottom of the calyx, the convex top slightly pubescent; ovules 4 to 6 in each cell, campylotropous, attached in 2 rows to an axile placenta. Capsule filling the calyx-tube, flat-topped, apparently indehiscent but readily separable into 2 cocci.

Queensland. Rockhampton, *Thozet*, with small leaves.

N. S. Wales. Hastings and Macleay rivers, *Beckler*.

4. ***B. citriodora***, *F. Muell. Fragm. i. 78*. A tall shrub or small tree, the young shoots under side of the leaves and inflorescence hoary-tomentose or at length glabrous. Leaves ovate or ovate-lanceolate, acuminate, coriaceous, glabrous above, 3 to 5 in. long, on petioles of $\frac{1}{4}$ to $\frac{1}{2}$ in. or more. Flowers



small, numerous in umbel-like clusters on peduncles of 1 in. or more in the upper axils or at the ends of the branches, the slender pedicels above $\frac{1}{2}$ in. long. Calyx-tube pubescent, broadly campanulate, about 1 line long, outer lobes broad and scarcely longer than the tube, inner ones longer and narrowed at the base. Petals shorter than the calyx, but not seen expanded. Ovary in the bottom of the calyx, semiadnate with a conical top, very rarely with a third cell; ovules about 6 to 8 in each cell, pendulous from a cuneate placenta suspended from the summit of the cell. After flowering the summit of the ovary protrudes much from the calyx, and shows no sign of splitting, but the ripe fruit not seen.

Queensland. Woods near Moreton Bay, *W. Hill, F. Mueller*.—Notwithstanding the difference in the placentation, this species cannot well be generically separated from the preceding one.

37. OSBORNIA, F. Muell.

Calyx-tube turbinate, not produced above the ovary; lobes 8, nearly equal, persistent. Petals none. Stamens indefinite, free, in 2 or 3 series, scarcely exceeding the calyx-lobes; filaments filiform; anthers small, versatile, the cells parallel, opening longitudinally. Ovary inferior, imperfectly 2-celled, with several ovules attached to a basal placenta or short dissepiment; style subulate, rather thick, with a small stigma. Fruit adnate to and included in the scarcely enlarged calyx-tube, and crowned by the persistent lobes, apparently dry and indehiscent. Seeds 1 or 2, obovoid, with a thin testa; embryo straight, with thick flattened or hemispherical cotyledons longer than the radicle.—Shrub. Leaves opposite, penniveined. Flowers small, sessile, solitary in the axils or terminal and three together. Bracteoles deciduous.

The genus is limited to the single Australian species, and shows no immediate affinity to any other one, except in some measure to *Backhousia*.

1. *O. octodonta*, *F. Muell. Fragm.* iii. 31. A bushy shrub, glabrous except the flowers. Leaves obovate-oblong, very obtuse, $\frac{3}{4}$ to $1\frac{1}{2}$ in. long, much narrowed into a very short petiole, thickened at the base, and leaving a contraction at the nodes when they fall off. Flowers sessile, solitary in the axils between 2 concave deciduous tomentose bracteoles, or 3 together at the ends of the branches. Calyx white with a close tomentum or short down, tube narrow, 2 to $2\frac{1}{2}$ lines long; lobes shorter, oblong, very obtuse, much imbricate in the bud. Fruit apparently dry, but not hard.

N. Australia. Islands of the Gulf of Carpentaria and Arnhem N. and S. Bays, *R. Brown*; Port Essington, *Armstrong*; Trinity Bay, *Henne*.

TRIBE II. MYRTÆ.—Ovary divided into 2 or more cells, or if 1-celled with 2 placentas. Fruit an indehiscent berry or a drupe. Leaves opposite, dotted.

38. RHODOMYRTUS, DC.

Calyx-tube turbinate, oblong or nearly globular, scarcely or not at all produced above the ovary; lobes 4 or 5, herbaceous, persistent. Petals 4 or 5, spreading. Stamens numerous in several series, free; filaments filiform; anthers versatile or attached near the base, with parallel cells opening longitudinally. Ovary really 1- 2- or 3-celled, with several ovules in 2 rows in

each cell, but owing to spurious dissepiments interposed between the ovules, appearing either 2-, 4- or 6-celled or divided into numerous 1-ovulated cells superposed in 2, 4, or 6 rows; style filiform, with the stigma usually peltate. Fruit a berry or almost a drupe, globular, ovoid, or cylindrical, divided into 1-seeded cells or nuts superposed in 2 to 6 or almost in a single row. Seeds compressed, reniform, or nearly orbicular, with a hard testa; embryo horse-shoe-shaped or ring-shaped, with a long radicle and very small cotyledons.—Trees or shrubs more or less tomentose or villous. Leaves opposite, penni-veined or triplinerved. Peduncles axillary, bearing 1 or 3 or rarely a raceme or cyme of 5 or more flowers, pink or white. Bracts small, or when the peduncles are several-flowered the lowest sometimes leaf-like. Bracteoles small and deciduous.

Besides the Australian species, there is one which is widely distributed over the Indian Archipelago, extending to S. China, but which has not yet been detected in Australia. The genus is nearly allied to *Myrtus*, and still nearer to *Psidium*, but appears to be sufficiently characterized by the ovary and fruit to be distinguished from both.

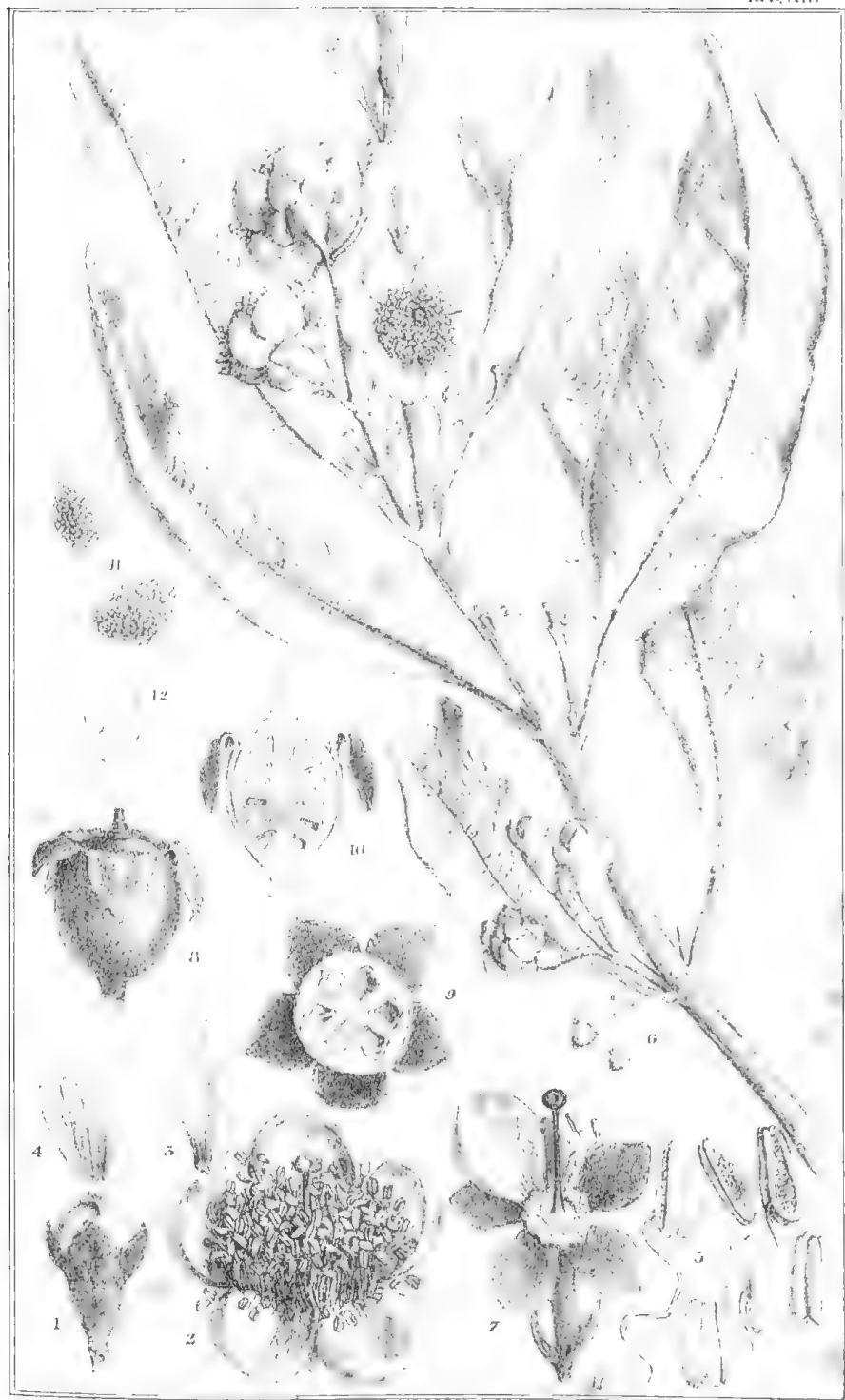
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|---|---------------------------|
| Leaves penni-veined. Flowers rather large (3, 5, or 7). Ovules and seeds in 6 rows | 1. <i>R. psidioides</i> . |
| Leaves prominently triplinerved. Flowers small (usually 3). Ovules and seeds in 4 rows | 2. <i>R. trineura</i> . |
| Leaves penni-veined, but with an intramarginal vein often prominent, so as to be almost triplinerved. | |
| Flowers small in a loose dichotomous cyme. Ovules and seeds in 4 or 6 rows | 3. <i>R. cymiflora</i> . |
| Flowers rather large (1, 3, or 5). Ovules in 2 rows. Fruit long, cylindrical, with the seeds in 1 or 2 rows | 4. <i>R. macrocarpa</i> . |

1. ***R. psidioides*, Benth.** A tree attaining sometimes a great size, the young shoots more or less hoary-pubescent; the older foliage glabrous. Leaves petiolate, from oval-elliptical to ovate-lanceolate or oblong, shortly and obtusely acuminate, mostly 3 to 4 in. long, shining above, penni-veined and prominently reticulate on both sides, the margins usually recurved. Peduncles axillary, rarely 1-flowered, mostly with 1, 2, or 3 pairs of pedicels besides the terminal one, the lowest often again 3-flowered, the pedicels all articulate below the calyx. Calyx-tube hoary-tomentose, thick, fully 2 lines long; lobes 5 or rarely 4, shorter than the tube, ovate, the inner ones rather larger and thinner than the outer. Petals about 3 lines long. Stigma broadly peltate. Berry ovoid-globular. Ovules and seeds superposed in 6 rows.—*Nelitris psidioides*, G. Don, Gen. Syst. ii. 829; *Myrtus Tozerii*, F. Muell. Fragm. ii. 86. t. 13.

Queensland. Brisbane river, *Hill, F. Mueller*.

N. S. Wales. Hunter's river, *R. Brown, Scott*; Hastings River, *Fraser, Beckler*; Clarence river, *Beckler*.

2. ***R. trineura*, F. Muell.** A shrub, the young shoots more or less velvety-tomentose. Leaves petiolate, ovate-lanceolate, acuminate, $1\frac{1}{2}$ to $2\frac{1}{2}$ in. long, triplinerved, much reticulate, glabrous above, loosely pubescent or tomentose underneath. Flowers usually 3 together, sessile in the axils, or borne on a short common peduncle. Calyx-tube tomentose-villous, above 1 line long; lobes 5, as long as the tube. Petals twice as long as the calyx-lobes, minutely pubescent or glabrous. Berry globular, villous, about 3 lines



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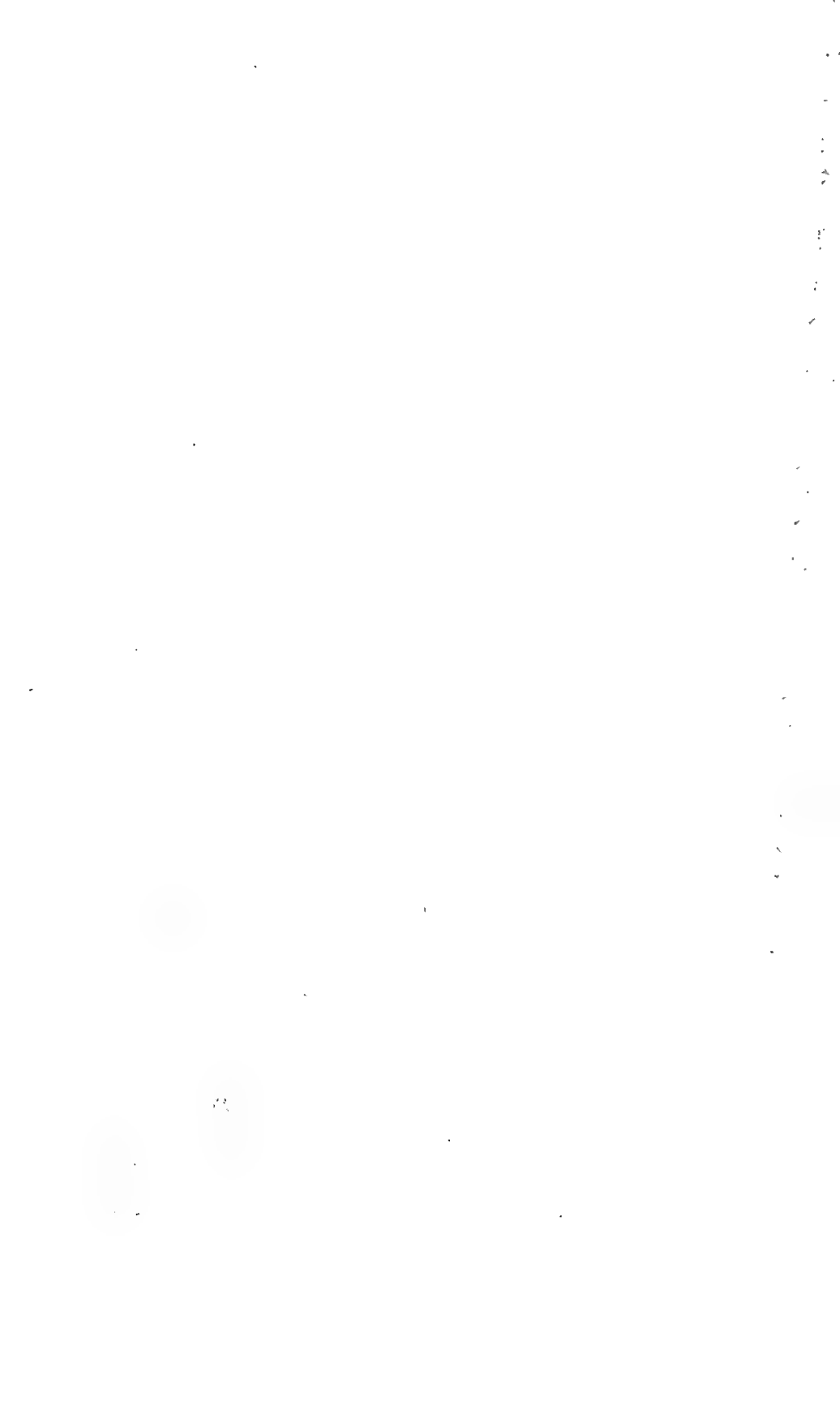
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Myrtus Tozerii. F. W.







diameter. Ovules and seeds superposed in 4 (or sometimes 6?) rows.—*Myrtus trineura*, F. Muell. Fragn. iv. 117.

Queensland. Wooded shores of Rockingham Bay, *W. Hill, Dallachy*.

3. ***R. cymiflora*, F. Muell.** Shrubby and glabrous. Leaves ovate-elliptical, shortly and obtusely acuminate, narrowed into a short petiole, finely and rather distantly penniveined, the veins united in a nerve much within the margin, and more prominent towards the base of the leaf, which thus appears almost triplinerved. Flowers several but not numerous, in loose dichotomous cymes, axillary, pedunculate, and sometimes exceeding the leaves. Calyx-tube turbinate or almost globular, above 1 line diameter; lobes 5, broad, shorter than the tube. Petals fully 2 lines diameter. Ovules superposed in 6 or rarely 4 rows. Fruit only seen young.—*Myrtus cymiflora*, F. Muell. Fragn. v. 12.

Queensland. Seaview Range, Rockingham Bay, *Dallachy*.

4. ***R. macrocarpa*, Benth.** A tall shrub, the young branches and inflorescence hoary with a close tomentum. Leaves petiolate, oval-elliptical or obovate, obtuse or shortly acuminate, often 6 to 10 in. long, penniveined and reticulate, glabrous or minutely pubescent underneath. Peduncles in the upper axils short, bearing either 1 or 3 flowers, or a short compact leafy raceme. Calyx-tube cylindrical; lobes 5, unequal. Petals tardily expanding. Style large, peltate. Ovules usually superposed in 2 rows on a parietal placenta protruding between the rows (the ovary reduced to a single cell). Fruit cylindrical, $\frac{3}{4}$ to $1\frac{1}{4}$ in. long, almost torulose. Seeds large, superposed usually in a single row, or very rarely the 2 rows perfect, and separated by firm partitions, the fruit then shorter and broader.

Queensland. Albany Island, *W. Hill*; Rockingham Bay, *Dallachy*.

39. MYRTUS, Linn.

Calyx-tube turbinate, scarcely or not at all produced above the ovary; lobes 4 or 5, small, usually persistent. Petals 4 or 5, spreading. Stamens numerous, in several series, free; filaments filiform; anthers versatile, or attached near the base, with parallel cells opening longitudinally. Ovary completely 2- or 3-celled, or imperfectly so, the dissepiments not quite reaching to the summit, with several ovules in each cell attached without order, or in 2 rows to an axile placenta either scarcely prominent or divided into 2 lamella; style filiform, with a small or rarely capitate stigma. Fruit a berry, globular or rarely ovoid, with few or rather numerous seeds not distinctly superposed in rows. Seeds more or less reniform, or almost circular, the testa hard or crustaceous, rarely membranous; embryo curved, horse-shoe-shaped, circular or spirally involute, with a long radicle; cotyledons very small, or rarely larger and folded.—Shrubs or rarely trees, glabrous or rarely pubescent or silky. Leaves opposite, penniveined. Peduncles axillary, usually slender, 1-flowered, or with several flowers in a centrifugal cyme, assuming, in the Australian several-flowered species, the form of a 5- or 7-flowered raceme, with a terminal flower sessile or on a shorter pedicel than the others. Bracteoles small and usually deciduous.

The genus is rather numerous in extratropical S. America and the Andes, extending more

sparingly to other parts of S. America, to Mexico, and the W. Indies. There are also 4 New Zealand species, and one widely spread over S. Europe and W. Asia, besides the Australian ones, which are all endemic. There is no positive character to separate it from *Eugenia*, except the embryo, and the 1-flowered species of the two genera are not very dissimilar in foliage. Generally speaking, however, the Myrtles have smaller leaves, a more simple inflorescence, and more generally 5-merous flowers than the *Eugenias* of the Old World.

Peduncles axillary, solitary, slender, 1-flowered.

Calyx-limb shortly and broadly sinuate-lobed. Ovary 3-celled . 1. *M. rhytisperma*.

Calyx-limb divided to the base into 5 lobes.

Leaves linear or lanceolate, hoary underneath. Ovary 2-celled 2. *M. tenuifolia*.

Leaves ovate or ovate-lanceolate, acuminate, glabrous.

Branchlets angular. Calyx slightly pubescent. Ovary 2-celled 3. *M. gonoclada*.

Branchlets terete. Calyx hoary-pubescent. Ovary 2-celled, with many ovules 4. *M. Hillii*.

Branchlets terete. Calyx glabrous. Ovary 3-celled, with few ovules in each cell 5. *M. Becklerii*.

Peduncles clustered in each axil, or bearing 3 or more flowers.

Ovary 2-celled.

Calyx 5-lobed, glabrous.

Leaves very shining, usually acuminate. Flowers numerous.

Pedicels usually in pairs in the racemes. Ovules few . . . 6. *M. Bidwillii*.

Leaves scarcely shining. Veins oblique and irregular. Pedicels slender, solitary along the raceme. Ovules numerous . 7. *M. racemulosa*.

Leaves scarcely shining, acuminate. Veins diverging and regular. Pedicels short, clustered on a very short common peduncle. 8. *M. acmenioides*.

Calyx 4-lobed, pubescent 9. *M. fragrantissima*.

1. *M. rhytisperma*, *F. Muell. Fragm.* i. 77. A shrub or small tree, with the habit of the common European Myrtle, the young shoots slightly pubescent, the older foliage glabrous. Leaves oblong-elliptical or oval-oblong, obtuse, $\frac{3}{4}$ to $1\frac{1}{2}$ in. long, narrowed or rounded at the base, finely penniveined, green on both sides. Peduncles axillary, 1-flowered, slender, nearly as long as the leaves, with minute bracteoles under the calyx. Calyx glabrous or nearly so; tube turbinate, $1\frac{1}{2}$ to 2 lines long; lobes 5, short, broad, rounded, connate into a broad sinuate limb. Petals 5. Ovary imperfectly 3-celled, the dissepiments not reaching the axis in the upper part; ovules 5 or 6 in each cell; stigma peltate. Berry 4 to 5 lines diameter. Seeds few, above 2 lines broad; testa not hard, slightly granular-rugose. Embryo long, more or less involute, with very short cotyledons.

Queensland. Wide Bay, *C. Moore*; Moreton Bay, *W. Hill*; in the interior, *Leichhardt*.

Var. *grandifolia*. Leaves ovate, shortly acuminate, $1\frac{1}{2}$ in. long. Flowers larger.

N. S. Wales. Clarence river, *C. Moore*.

2. *M. tenuifolia*, *Sm. in Trans. Linn. Soc.* iii. 280. A small elegant spreading shrub, the young shoots more or less silky. Leaves from linear-lanceolate to ovate-lanceolate, obscurely penniveined, flat or with recurved margins, rarely exceeding 1 in., glabrous above, hoary or silky-white underneath. Peduncles axillary, 1-flowered, slender, shorter than the leaves. Bracteoles small, close under the calyx. Calyx-tube tomentose, rather broad, about $\frac{3}{4}$ line long; lobes 5, broad, obtuse, nearly equal, rather longer than

the tube. Petals 5, ovate-orbicular, about 2 lines long. Ovary 2-celled; ovules rather numerous in each cell on a 2-lobed placenta. Seeds not numerous, testa hard, embryo semicircular, narrow, with 2 small cotyledons.

Queensland. Moreton Island, *Backhouse*.

N. S. Wales. Port Jackson to the Blue Mountains, *R. Brown*; *A. and R. Cunningham*, and others; Clarence and Richmond rivers, *C. Moore*. The latter specimens, as well as the Moreton Island ones, are broad-leaved, the Blue Mountain ones have generally narrow leaves.

3. ***M. gonoclada*, F. Muell. Herb.** A tree, attaining about 25 ft., quite glabrous, excepting sometimes the calyx, the young branches often marked with raised lines decurrent from the leaves. Leaves ovate, obtuse or obtusely acuminate, narrowed at the base, smooth and shining, with an intramarginal vein as in *M. acmenioides*, but the veins less numerous. Pedicels solitary, 1-flowered, axillary or below the leaves on the young shoot, slightly thickened at the end, articulate, with a pair of minute bracts under the calyx. Calyx-tube turbinate, glabrous or minutely hoary; lobes 5, nearly equal, much shorter than the tube. Petals 5, about $1\frac{1}{2}$ lines diameter, minutely pubescent-ciliate. Ovary pubescent at the top, 5-celled; ovules rather numerous, on a peltate 2-lobed placenta. Fruit not seen.

Queensland. Moreton Bay, *C. Stuart*. This is very much like the European *M. communis*, but at once distinguished by the 2-celled ovary.

4. ***M. Hillii*, Benth.** A shrub or small tree, glabrous except the flowers, the branchlets terete. Leaves ovate, acuminate, narrowed into a short petiole, 1 to 2 in. long, very smooth and shining, penniveined, with the veins irregularly confluent into an intramarginal one. Pedicels axillary, slender, $\frac{1}{2}$ to $\frac{3}{4}$ in. long, solitary or 2 or 3 together on a very short common peduncle. Calyx tomentose-pubescent; tube nearly globular, under 1 line long; lobes 5, broad, rounded, slightly unequal and rather longer than the tube. Petals 5, $2\frac{1}{2}$ lines long, pubescent and ciliate. Ovary pubescent on the top, very fleshy, 2-celled, with about 16 to 20 ovules in each cell. Fruit nearly globular, crowned by the spreading or reflexed calyx-lobes, but not seen ripe. Seeds several.

Queensland, *W. Hill*; Pine river, Moreton Bay, *Fitzalan*.

5. ***M. Becklerii*, F. Muell. Fragm. ii. 85.** A tall shrub, quite glabrous. Leaves ovate or ovate-lanceolate, acuminate, cuneate at the base, 1 to 2 in. long, rather thick, penniveined or obscurely triplinerved, the lateral nerves scarcely conspicuous. Peduncles solitary, axillary, filiform, rarely above $\frac{1}{2}$ in. long, with very minute bracteoles a short distance from the flowers. Calyx glabrous; lobes 5, short and broad. Petals not seen. Ovary 3-celled, with 8 to 10 ovules in each cell in 2 rows; stigma slightly peltate. Fruit globular, about 2 lines diameter. Seeds several, flat, nearly orbicular, the testa minutely granulate-reticulate.

N. S. Wales. Mountain woods, Cloud's Creek, Clarence river, *Beckler*.

6. ***M. Bidwillii*, Benth.** A shrub or small tree, quite glabrous. Leaves broadly ovate but usually contracted into a long lanceolate obtuse point, cuneate at the base, on a short broad petiole, 2 to 3 in. long, finely and distantly penniveined, coriaceous and very smooth and shining. Flowers much

more numerous than in *M. racemulosa*, in short loose racemes, clustered in the axils, the pedicels generally in opposite pairs along the rhachis, with a cluster of 5 at the end. Calyx-tube short; lobes 5 or rarely 4, spreading to a little more than 1 line diameter. Petals usually 5, sometimes 4 or 6, $1\frac{1}{2}$ lines diameter, minutely ciliolate. Stamens much more numerous than in *M. racemulosa*, and covering half the radius of the flat disk. Ovary completely 2-celled, with a small cluster of ovules in each cell.

Queensland. Wide Bay, *Bidwill*. Some specimens of Dallachy's, from Port Denison, with less acuminate leaves, appear to belong to the same species, but are in bud only.

7. *M. racemulosa*, Benth. A small tree, quite glabrous, the branchlets terete or slightly flattened. Leaves ovate, obtuse or shortly acuminate, rounded or scarcely cuneate at the base, $1\frac{1}{2}$ to $2\frac{1}{2}$ in. long, penniveined, with a few of the veins more prominent, the lower ones very oblique, and the lowest pair sometimes forming an intramarginal one nearly to the end. Pedicels slender, usually 5 or 7 in a loose axillary raceme, not exceeding the leaves, the terminal one short, the lateral ones longer, solitary and opposite, and sometimes 2 racemes in each axil. Bracteoles minute, close under the flower. Calyx glabrous; tube somewhat turbinate, under 1 line long; lobes 5, broad, about as long as the tube. Petals 5, fully twice as long as the calyx-lobes. Stamens numerous, as in all *Myrti*, but occupying only the margin of the disk. Ovary 2-celled, with 12 to 16 ovules in each cell, on a broad placenta, the dissepiments scarcely complete to the top. Fruit globular, about 2 lines diameter, crowned by the calyx-limb. Seeds 1 or 2, nearly globular or reniform; testa hard. Embryo very long, irregularly twisted or doubly folded or involute, the radicular end thickened, the cotyledons very small.

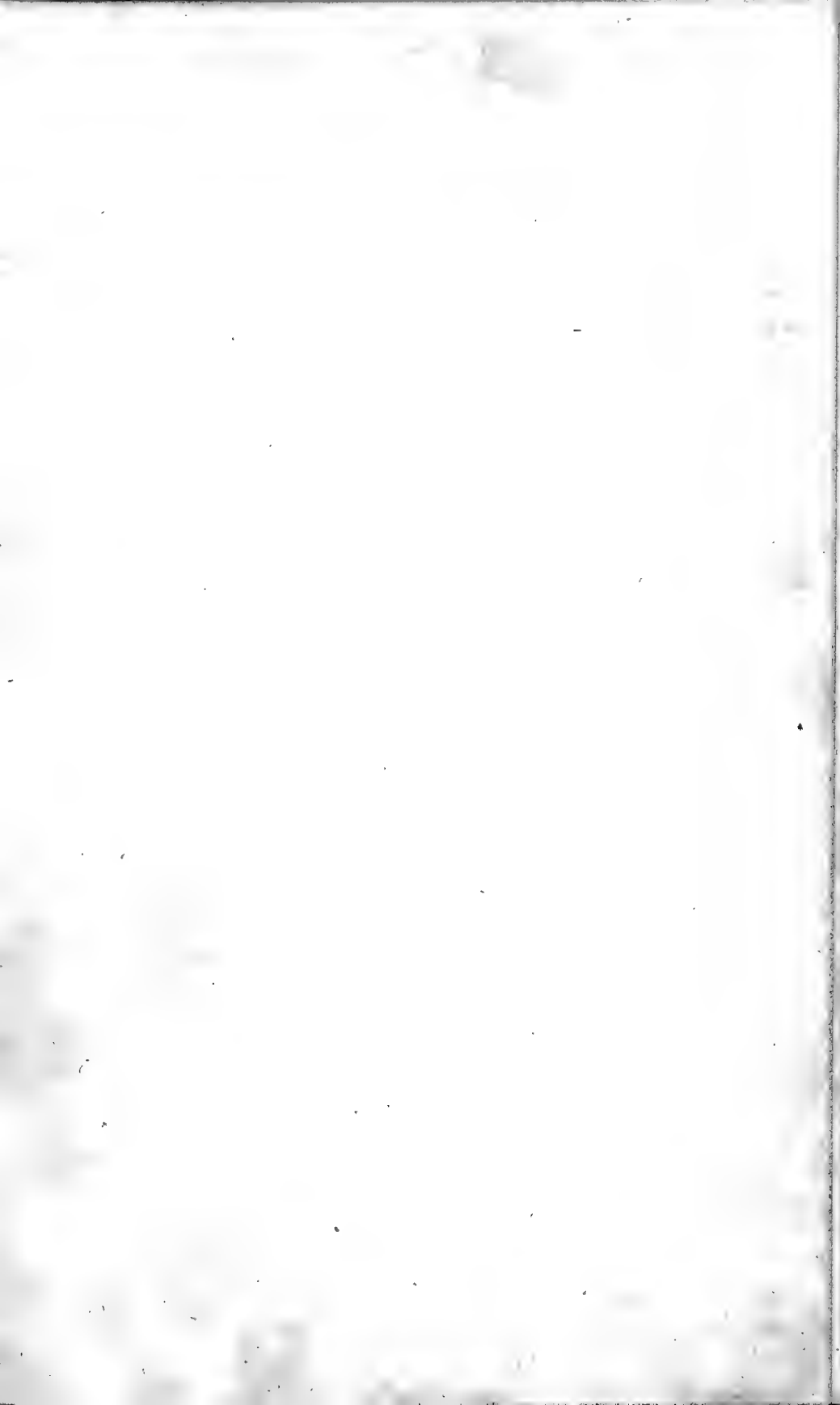
Queensland. Broad Sound, *R. Brown*; Port Denison, *Fitzalan*; Edgecombe and Rockingham Bays, *Dallachy*.

Var. *conferta*. Racemes short, almost reduced to the clusters of *M. acmenioides*, but the venation of the leaves as in *M. racemulosa*.—Port Denison, *Fitzalan*.

8. *M. acmenioides*, F. Muell. Fragm. i. 77. A tree, of 20 to 40 ft., quite glabrous, with a reddish bark. Leaves ovate, acuminate, narrowed into a short petiole, $1\frac{1}{2}$ to nearly 3 in. long, scarcely shining, finely pinniveined, with the veins much more regular and diverging than in *M. racemulosa*, confluent in a fine intramarginal one. Pedicels rather firm, 3 to 4 lines long, usually several together in the axils or at the old nodes, in a cluster or short raceme, on a very short common peduncle. Bracteoles minute, deciduous, close under the flower. Calyx-tube broad, about 1 line long; lobes 5, broad, obtuse, shorter than the tube, all equal or the inner one larger with petal-like margins. Petals 5, more or less ciliate, the outermost about 2 lines diameter, the others rather smaller. Ovary 2-celled, with about 12 to 16 ovules in each cell on a 2-lobed placenta. Fruit about 2 lines diameter, usually crowned by the calyx-lobes. Seeds few and sometimes only one, globular, reniform or hemispherical; testa hard, smooth and shining. Embryo long, spirally involute, the radicular end thickened; cotyledons very small.

Queensland. Moreton Bay and Wide Bay, *W. Hill*, *C. Moore*.

N. S. Wales. Hastings and Clarence rivers, *Beckler*, *Wilcox*.





9. **M. fragrantissima**, *F. Muell. Herb.* A shrub or tree, the young shoots slightly hoary. Leaves very shortly petiolate, broadly ovate, 1 to 2 in. long, glabrous, penniveined, without any intramarginal vein. Flowers small, few, in short pedunculate axillary racemes, with the terminal one sessile, or the pedicels solitary and 1-flowered at the base of the shoots. Flowers smaller than in the other species and apparently all 4-merous. Calyx pubescent, the tube nearly globular, about 1 line diameter; lobes 4, rather shorter than the tube. Petals 4, twice as long as the calyx-lobes. Ovary 2-celled, with rather numerous ovules crowded on the small placenta; stigma small. Fruit not seen.

Queensland. Moreton Bay, *Herb. F. Mueller.*

N. S. Wales. Richmond river, *C. Moore? in Herb. F. Mueller.*

The seed being unknown, the genus of this plant must be uncertain, but, notwithstanding its 4-merous flowers, it has in other respects much more the aspect of a *Myrtus* than of a *Eugenia*.

40. **RHODAMNIA**, Jack.

(*Monoxora*, *Wight.*)

Calyx-tube ovoid or nearly globular, not produced above the ovary; lobes 4, usually persistent. Petals 4, spreading. Stamens numerous, in several series, free; filaments filiform; anthers versatile, with parallel cells, opening longitudinally. Ovary 1-celled, with 2 parietal placentas, each with several ovules; style filiform; stigma usually peltate. Berry globular, usually crowned by the calyx-limb. Seeds usually few, reniform-globular or variously compressed; testa hard; embryo horseshoe-shaped, with a long radicle and very small cotyledons.—Shrubs or small trees. Leaves opposite, 3-nerved or triplinerved. Flowers usually small, the pedicels clustered in the axils or forming very short racemes. Bracteoles small, deciduous.

The genus is spread over tropical Asia, and comprises about a dozen published species, some of which however will probably be reduced on a careful scrutiny. The three Australian ones appear to be endemic, although it is possible, when better known, that two of them may prove to be extreme forms of the most widely spread among the Asiatic ones. The 1-celled ovary, with parietal placenta, readily distinguishes the genus from all other *Myrtææ*, and the 3-nerved leaves are only in this genus and in *Rhodomyrtus*.

Flowers sessile in the axils. Leaves acuminate, mostly above 3 in. long. 1. *R. sessiliflora*. Flowers in pedunculate cymes. Leaves mostly under 3 in. long.

Leaves acuminate, 3-nerved, pubescent underneath but not white.

Calyx glabrous or pubescent. 2. *R. trinervia*.

Leaves obtuse, triplinerved, shining above, white underneath. Calyx

very tomentose 3. *R. argentea*.

1. **R. sessiliflora**, *Benth.* Branches tomentose-pubescent. Leaves ovate, acuminate, mostly 3 to 5 in. long, glabrous above, more or less tomentose-pubescent underneath, especially on the nerves, triplinerved and reticulate. Flowers small, usually 3 together, sessile in the axils. Bracteoles small, linear, deciduous. Calyx densely tomentose-pubescent, about 1 line long; lobes orbicular or ovate, obtuse, unequal, the largest about 1 line diameter. Petals $1\frac{1}{2}$ lines diameter. Stamens rather longer. Ovules numerous, in 3 or 4 irregular rows on each placenta. Berry small, globular, pubescent, with 1 to 4 seeds, the calyx-lobes deciduous.

Queensland. Rockingham Bay, *Dallachy*. Evidently nearly allied to the common *R. spectabilis*, Blume, but at once distinguished by the sessile flowers and fruits.

2. **R. trinervia**, *Blume, Mus. Bot. i. 79.* A tall shrub or small tree, the young shoots, under side of the leaves, and inflorescence, more or less velvety-pubescent, but not white. Leaves ovate-oblong or ovate-lanceolate, acuminate, glabrous and much reticulate above, prominently 3-nerved from the base. Peduncles slender, axillary, 3 together in a cluster or on a short common peduncle, each with 1 or rarely 3 flowers, with minute bracteoles under the calyx. Calyx pubescent or nearly glabrous; tube about 1 line long; lobes nearly as long. Petals twice as long as the calyx-lobes. Stamens shorter than the petals. Stigma small. Berry globular, about 3 lines diameter or rather more, with few or with rather numerous seeds.—*Myrtus trinervia*, Sm. in Trans. Linn. Soc. iii. 280; *Eugenia* (?) *trinervia*, DC. Prod. iii. 279; Bot. Mag. t. 3223; *Monoxora rubescens*, Benth. in Hook. Lond. Journ. ii. 219; *Myrtus melastomoides*, F. Muell. Fragm. i. 76.

Queensland. Damp wooda, Moreton Bay, and in the interior, *A. Cunningham*, *Fraser*, *W. Hill*.

N. S. Wales. Port Jackson to the Blue Mountains, *R. Brown*, *Woolls*, *Miss Atkinson*; northward to Clarence river, *C. Moore*; southward to Illawarra, *A. Cunningham*, *Shepherd*, *Ralston*.

3. **R. argentea**, *Benth.* A tall tree, the young shoots, under side of the leaves, and inflorescence more or less silvery-white with a close minute tomentum. Leaves oval or elliptical, obtuse, narrowed at the base, triplinerved, with transverse veins and scarcely reticulate, 2 to 3 in. long, smooth and shining above. Peduncles axillary, solitary or 2 or 3 together, 2 to 4 lines long, each bearing either 3 or a trichotomous cyme of 5 to 9 flowers on very short pedicels. Calyx tomentose; tube about 1 line diameter; lobes about as long as the tube but rather unequal. Petals slightly tomentose, fully twice as long as the calyx-lobes. Stamens shorter than the petals. Ovules rather numerous to each placenta.

Queensland. Moreton Bay, *A. Cunningham* (a doubtful form, with acuminate leaves, longer than as above described, perhaps distinct, but the specimens insufficient). Also among Queensland woods, Exhibition, 1862, *W. Hill*.

N. S. Wales. Clarence river, *C. Moore*, *Wilcox*.

The species is very near *R. cinerea*, Jack, from which *R. spectabilis*, Blume, and several others may prove not to be specifically distinct.

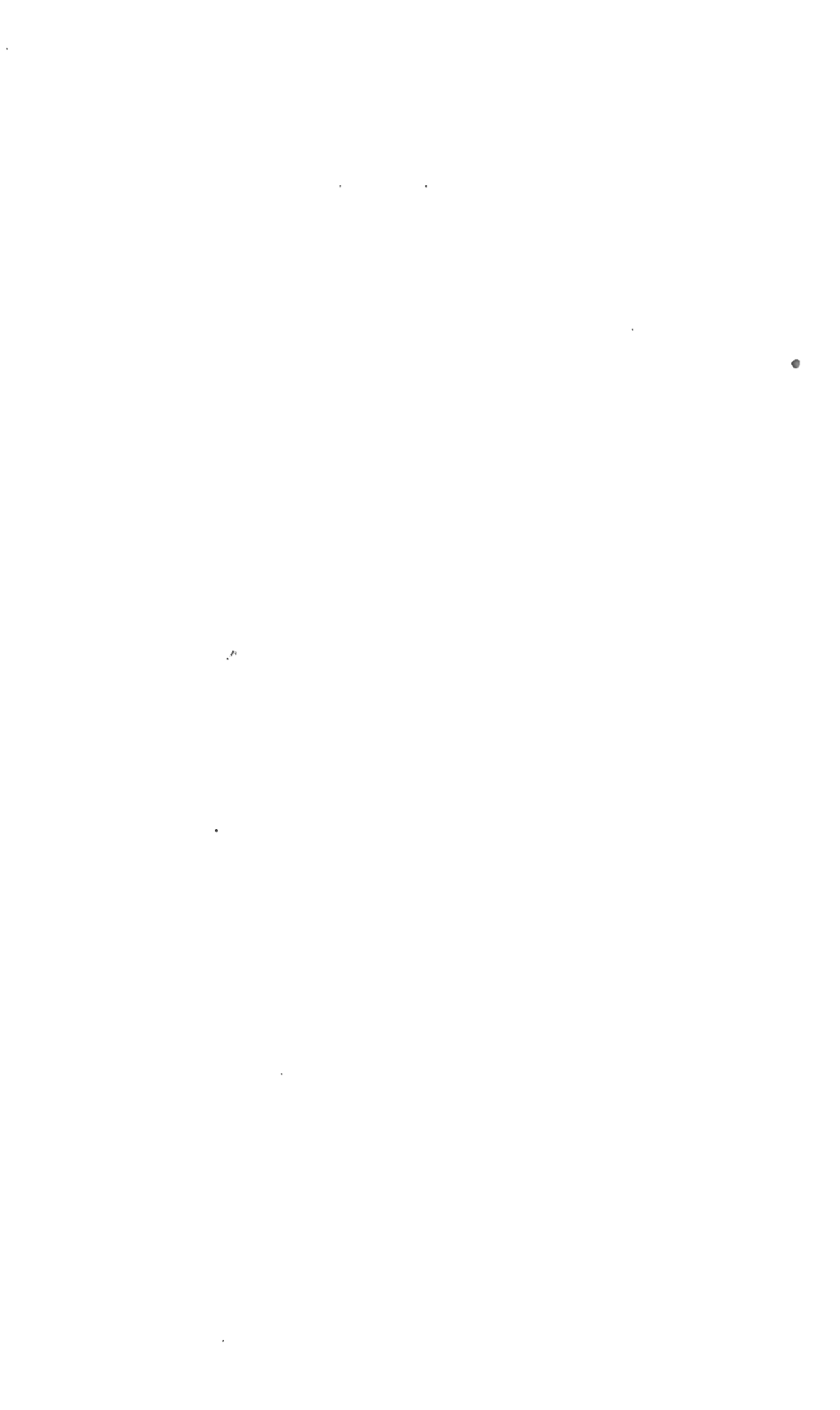
41. FENZLIA, Endl.

Calyx-tube ovoid, not produced above the ovary; lobes 5, acute, persistent. Petals 5, spreading. Stamens numerous, in several series, free; filaments filiform; anthers versatile, with parallel cells opening longitudinally. Ovary 1-celled with a parietal placenta, or 2-celled with the placentas attached to the dissepiment, with 2 or 3 superposed ovules in each cell; style filiform, with a small stigma. Drupe ovoid or globular, crowned by the spreading or reflexed calyx-lobes, the epicarp thin, the endocarp thick and bony. Seeds 1 or 2, separately enclosed in the endocarp; testa thin; embryo very long, spirally involute, the outer radicular end somewhat thickened, the cotyledons linear, in the centre of the coil.—Shrubs more or less hoary-tomentose. Leaves opposite, penniveined. Flowers pink, solitary and pedicellate in the axils, with a pair of bracteoles under the calyx.

This genus is limited to the two species endemic in Australia.







Leaves usually glabrous above. Calyx-tube and fruit at length glabrous or moderately tomentose, ovoid 1. *F. obtusa*.
 Leaves tomentose on both sides, usually small. Calyx-tube and fruit very tomentose, globular 2. *F. retusa*.

1. ***F. obtusa*, Endl. Atakta, 19. t. 17.** A low bushy shrub, the young shoots, inflorescence, and under side of the leaves hoary-tomentose. Leaves petiolate, obovate or oblong, very obtuse, mostly $\frac{3}{4}$ to 1 in. long, coriaceous, finely penniveined, smooth and shining above. Pedicels sometimes very short, sometimes 3 to 4 lines long, with a pair of subulate bracteoles under the calyx. Flowers pink. Calyx tomentose, the tube ovoid-oblong, about 1 line long; lobes narrow lanceolate-subulate, usually longer than the tube and united at the base in a short open limb. Petals obovate, 2 to 3 lines long, pubescent or nearly glabrous. Stamens shorter than the petals. Fruit very hard, ovoid, 2 to 3 lines long, glabrous or tomentose. Seeds usually 2 or 3.

Queensland. Shoalwater Bay Passage, Broad Sound, etc., *R. Brown*; Cape York, *M'Gillivray*, *W. Hill*; Islands of Torres Straits, *Hutchinson*, *C. Moore*; Rockingham Bay, *Dallachy*.

Var. *microphylla*. Leaves 3 to 4 lines long.—Dividing ranges between Thomson and Burdekin rivers, *S. Sutherland* (a small fragment and another in *Bowman's* collection in Herb. F. Mueller).

2. ***F. retusa*, Endl. Atakta, 20. t. 18.** Very near *F. obtusa*, but much more stellate-tomentose. Leaves usually but not always smaller, mostly under $\frac{3}{4}$ in. long, in the original specimens narrow and notched at the end, scarcely losing their tomentum on the upper side. Pedicels short. Flowers small. Calyx-tube more globular than in *F. obtusa* and densely tomentose, the lobes shorter than the tube. Petals tomentose outside, not so much contracted at the base in our specimens as represented in the plate. Fruit usually almost globular, much smaller than in *F. obtusa*, more or less tomentose.

N. Australia. Islands of the Gulf of Carpentaria, *R. Brown*; Victoria river, *F. Mueller*.

42. NELITRIS, Gærtn.

Calyx-tube campanulate, not at all or scarcely produced above the ovary; lobes 4 or 5. Petals 4 or 5, spreading. Stamens numerous, in several series, free; anthers versatile, with parallel cells opening longitudinally. Ovary 4- or 5-celled, with 2 or very few ovules in each cell, and sometimes each cell divided into 2 by a spurious dissepiment; style filiform, the stigma in the perfect flowers peltate. Berry globular, crowned by the calyx-lobes. Seeds few, reniform-globose; testa hard; embryo horseshoe-shaped or circular, with a long radicle and short linear cotyledons.—Shrubs or small trees. Leaves opposite, penniveined. Flowers small, pedicellate in axillary racemes, often forming terminal leafy panicles.

The genus is dispersed over tropical Asia, especially the Indian Archipelago and the Pacific islands, the Australian species apparently identical with the commonest Asiatic one. It is nearly allied to *Myrtus*, but readily distinguished by the number of cells to the ovary.

1. ***N. paniculata*, Lindl. Collect. under n. 16.** A shrub or small tree, the young shoots and inflorescence silky-pubescent. Leaves ovate-lanceo-

late, acutely acuminate, narrowed at the base, 1 to 2 in. long, glabrous above, with fine scarcely conspicuous nearly transverse veins, silky-pubescent underneath or at length glabrous. Flowers smaller than in other Australian *Myrtles*, the racemes usually shorter or scarcely longer than the leaves, but often forming an elegant leafy panicle. Calyx very silky-pubescent, the tube about $\frac{1}{2}$ line long, and the lobes about the same length. Petals twice as long as the calyx-lobes, more or less silky-pubescent. Anthers small, nearly globular. Berry about 2 lines diameter. Seeds few, with a hard tubercular-rugose almost bony testa; cotyledons nearly one-third the length of the embryo.—DC. Prod. iii. 231; Wight, Ic. t. 521; *Myrtus elachantha*, F. Muell. Fragm. iv. 56.

Queensland. Moreton Bay, *W. Hill*; Pine woods, Wide Bay, *Bidwill*. Common in the Indian Archipelago up to the Philippine Islands and in the eastern provinces of India to Khasia.

Var. *laxiflora*. Leaves longer, the veins more or less transverse (only visible in the old leaves). Flowers more numerous, in looser racemes and rather larger, the calyx glabrous or very slightly pubescent. Ovary 5-celled with 5 to 7 ovules in each cell (usually 2 or 3 in the common form). Fruit not seen. Perhaps a distinct species.—Rockingham Bay, *Dallachy*.

43. *EUGENIA*, Linn.

(*Jossinia*, Comm.; *Jambosa*, DC.; *Syzygium*, Gaertn.; *Acmena*, DC.)

Calyx-tube from globular to narrow-turbinate, not at all or more or less produced above the ovary; lobes 4, very rarely 5, from large and imbricate to very short and scarcely prominent above the truncate margin. Petals 4, very rarely 5, either free and spreading, or more or less connivent, or connate and falling off in a single calyptra. Stamens numerous, in several series, free or obscurely collected in 4 bundles; anthers versatile, usually small, the cells parallel or very rarely divaricate, opening longitudinally. Ovary 2-celled or very rarely (in species not Australian) 3-celled, with several ovules in each cell, or only 2 in an American section. Fruit a berry or sometimes almost a drupe, or nearly dry with a fibrous rind. Seeds either solitary and globose, or few and variously-shaped by compression; testa membranous or cartilaginous; embryo thick and fleshy, with a very short radicle, the cotyledons either united in an apparently homogeneous mass or more or less separable.—Trees or shrubs. Leaves opposite, penniveined. Flowers (in the Australian species) either solitary in the axils, or in lateral or terminal trichotomous cymes or panicles.

A most numerous genus, spread over the tropical and subtropical regions both of the New and the Old World. Of the 16 Australian species 12 or 13 are endemic, 3 or perhaps 4 common to East India and the Archipelago. The genus has been variously subdivided into sections or genera by different botanists according to whether they have worked chiefly upon American or upon Asiatic species. The most convenient course, however, appears to be that proposed by Wight, A. Gray, and others, to retain under the genus all *Myrteæ* with fleshy fruits and thick fleshy cotyledons with a very short radicle, except, perhaps, a very few American species with very different floral characters.

SECT. I. *Euegenia*.—Pedicels short, 1-flowered, solitary or 2 together in the axils or at the old nodes. Calyx-tube not at all or scarcely produced above the ovary. Petals free and spreading. 1. *E. carissoides*.

SECT. II. *Syzygium*.—Flowers in trichotomous panicles or cymes. Calyx-tube more





or less produced above the ovary, the border entire or very shortly sinuately-lobed, or with more prominent but very deciduous lobes. Petals more or less cohering in a calyptra, or rarely spreading and separately deciduous.

Flowers in loose panicles, terminal or in the upper axils.

Panicles corymbose. Petals cohering. Anther-cells divaricate . . . 2. *E. Smithii*.

Panicles oblong or pyramidal. Petals often more or less distinct.

Anther-cells parallel . . . 3. *E. Ventenatii*.

Flowers in dense or trichotomous panicles, lateral on the old wood.

Panicles reduced to a short dense corymb or head. Buds long, slender and clavate. Stamens very short. Leaves narrow . . . 4. *E. leptantha*.

Panicles trichotomous, divaricate. Buds nearly globular. Leaves large, broad, rigid, shining and reticulate . . . 5. *E. Jambolana*.

(See also 8. *E. grandis*, with dense panicles mostly terminal, which has almost the calyx of *Syzygium*.)

SECT. III. **Jambosa**.—Flowers in trichotomous panicles or cymes. Calyx-tube more or less produced above the ovary, prominently lobed, the lobes usually persistent. Petals free and spreading.

Flowers in divaricate trichotomous cymes or panicles, lateral on the old wood.

Calyx-tube urceolate, 4 to 5 lines long. Outer stamens above 1 in. long. Fruit large, ovoid . . . 6. *E. cormiflora*.

Calyx-tube turbinate, about 2 lines long. Stamens scarcely above $\frac{1}{2}$ in. long. Fruit nearly globular . . . 7. *E. Tierneyana*.

Flowers large, in a large trichotomous terminal panicle. Leaves broad, obtuse, coriaceous. Calyx-tube turbinate.

Calyx-tube sessile, about 3 lines long; lobes very short . . . 8. *E. grandis*.

Calyx-tube nearly 5 lines long, tapering into a thick pedicel; lobes 3 to 5 lines . . . 9. *E. suborbicularis*.

Flowers in a dense terminal sessile cyme. Calyx-tube narrow-clavate. Stamens purple, $\frac{3}{4}$ to 1 in. long. Leaves long . . . 10. *E. Wilsonii*.

Flowers rather large, few in a terminal cyme. Calyx-tube turbinate; lobes as long as the tube.

Leaves long, narrow, very obliquely and irregularly veined . . . 11. *E. eucalyptoides*.

Leaves ovate or elliptical, under 3 in. long, with fine irregular very diverging veins . . . 12. *E. myrtifolia*.

Flowers rather small, in a corymbose terminal panicle. Calyx turbinate-campanulate, under 2 lines long; lobes small.

Flowers tapering at the base, sessile or nearly so. Calyx usually 5-lobed . . . 13. *E. angophoroides*.

Flowers distinctly pedicellate. Calyx 4-lobed.

Calyx-lobes very deciduous, leaving a truncate margin at the time of flowering . . . 3. *E. Ventenatii*.

Calyx-lobes persistent at the time of flowering . . . 14. *E. Armstrongii*.

Flowers in slender trichotomous cymes, opposite on young shoots or in terminal pairs. Calyx-lobes very small . . . 15. *E. oleosa*.

Flowers 3 or few in axillary cymes. Calyx-lobes rather large.

Leaves 2 to 3 in. long, finely and transversely penninerved . . . 12. *E. myrtifolia*.

Leaves broad, 3 to 5 in. long, almost triplinerved . . . 16. *E. Dallachiana*.

Specimens are before me of two other species, probably *Eugenia*s, but insufficient for definition. One, a shrub, evidently allied to *E. myrtifolia*, but with larger more coriaceous leaves, and a looser more divaricate inflorescence, from Albany island, *W. Hill*. The other, with the foliage nearly of the Indian *E. nervosa*, but the calyx quite different; leaves only and unripe loose fruits without perfect seeds (*E. jucunda*, F. Muell.); Rockingham Bay, *Dallachy*.

SECTION 1. **EUEUGENIA**.—Pedicels short, 1-flowered, solitary or 2 together

in the axils or at the old nodes. Calyx-tube (in the Old World species) not at all or scarcely produced above the ovary. Petals free and spreading.

This section, more definitely characterized by the inflorescence than by the calyx, comprises only a few of the Old World species, but very numerous American ones, and, according to the views of those who have studied chiefly American *Myrtaceæ*, should, with other species having a racemose or clustered (not trichotomous or cymose) axillary inflorescence, constitute the whole genus *Eugenia*, to the exclusion of *Syzygium* and *Jambosa*.

1. ***E. carissoides***, F. Muell. *Fragm.* iii. 130. A shrub, with short divaricate glabrous branches. Leaves shortly petiolate, ovate orbicular or almost rhomboidal, very obtuse, $\frac{3}{4}$ to $1\frac{1}{2}$ in. long, coriaceous, irregularly pinniveined and loosely reticulate. Flowers solitary or 2 together at the old nodes, nearly sessile or on pedicels rarely 2 lines long. Calyx glabrous or minutely pubescent; tube campanulate, about 1 line long, not produced above the ovary; lobes 4, nearly orbicular, persistent, about as long as the tube. Petals 4, spreading and falling off separately. Anthers short. Ovules rather numerous. Berry globular, 3 to 4 lines diameter, and 1-seeded, or oblong with 2 superposed seeds, or broader than long and somewhat didymous with 2 collateral seeds, crowned by the calyx-lobes.—*E. hypospodia*, F. Muell. *Fragm.* v. 15.

Queensland. Northumberland Islands, R. Brown; Cape York, M'Gillivray; common on rocks at Port Denison and Rockingham Bay, Dallachy.

The species is very nearly allied to, and perhaps not really distinct from, *E. rariflora*, Benth. in Hook. Lond. Journ. ii. 221; A. Gray, Bot. U. S. Expl. Exped. i. 514, t. 60, a species widely spread over the S. Pacific islands, and differing chiefly, as far as known, in its much larger fruit.

SECTION 2. SYZYGIUM.—Flowers in trichotomous panicles or cymes. Calyx-tube more or less produced above the ovary, the border entire or very shortly sinuately-lobed, or with more prominent but very deciduous lobes. Petals more or less cohering in a calyptra and falling off together, or rarely spreading and separately deciduous.

These species are all natives of the Old World, although a very few have in some measure become naturalized in some parts of tropical America. The section is often considered as a genus, but there are too many species in which the character derived from the calyx and petals is doubtful or variable, to allow of its being distinctly separable from *Jambosa*.

2. ***E. Smithii***, Poir. *Dict. Suppl.* iii. 126. A tree, sometimes small and slender, but attaining in some places a considerable height, quite glabrous. Leaves petiolate, from ovate to ovate-oblong or ovate-lanceolate, obtuse or more or less acuminate, narrowed at the base, mostly 2 to 3 in. long, smooth and finely pinniveined. Flowers small and numerous, in a terminal trichotomous panicle, sometimes corymbose and shorter than the leaves, sometimes longer and more pyramidal. Bracts minute and deciduous. Calyx-tube turbinate, about 1 line long, the free part very much broader; lobes either all very short broad and scarcely prominent, or 1 or 2 rather larger almost petal-like and deciduous. Real petals 4, united in a small flat very deciduous calyptra. Stamens scarcely 1 line long; anthers small, with distinct globular divaricate cells. Ovules rather numerous. Fruit white or purple, globular, $\frac{1}{4}$ to $\frac{1}{2}$ in. diameter, crowned by the circular prominent calyx-rim; endocarp thick and hard. Cotyledons closely combined.—*E. elliptica*, Sm. in Trans. Linn. Soc. iii. 281, not of Lam.; Bot. Mag. t. 1872;

Myrtus Smithii, Spreng. Syst. ii. 487; *Acmena floribunda*, var. β , DC. Prod. iii. 262; Bot. Mag. t. 5480 (wrong as to the petals); *Syzygium brachyneum*, F. Muell. Fragm. iv. 59 and Pl. Vict. Suppl. t. 18 (the petals not quite correct); probably also *Acmena Kingii*, G. Don, Gard. Dict. ii. 851.

N. Australia. Port Essington, *Armstrong*.

Queensland. Cape York, *W. Hill*; Rockingham Bay, *Dallachy*; Brisbane river, Moreton Bay, *F. Mueller*.

N. S. Wales. Port Jackson to the Blue Mountains, *R. Brown*, and others; northward to Hastings, Clarence, and Macleay rivers, *Beckler*, *Wilcox*; New England, *C. Stuart*; southward to Illawarra, *A. Cunningham*; Twofold Bay, *F. Mueller*.

Victoria. Snowy River, Lake King, Sealers' Cove, Cape Wilson, etc., known as "Lilly Pillies," *F. Mueller*.

The anthers with divaricate cells are, so far as hitherto observed, exceptional in the genus.

3. E. Ventenatii, Benth. A tall tree, quite glabrous. Leaves petiolate, oblong-lanceolate or rarely ovate-lanceolate, acuminate, narrowed at the base, mostly 3 to 5 in. long, finely penniveined as in *E. Smithii*. Flowers larger than in that species, in compound thyrsoid or oblong panicles, the pedicels short but slender and distinct. Buds nearly globular. Calyx-tube broadly turbinate-campanulate, about $1\frac{1}{2}$ lines long, the adnate portion very short, the margin truncate with 4 lobes or teeth very short, or if larger and petal-like falling off as the flower expands. Petals 4, ovate, concave, under 1 line long, usually distinct and very deciduous, but according to *F. Mueller* sometimes cohering, and occasionally there is an inner series of smaller ones. Stamens attaining about 2 lines; anther-cells parallel. Ovules about 10 in each cell. Fruit not seen.—*Metrosideros floribunda*, Vent. Jard. Malm. t. 75, not of Sm.; *Syzygium floribundum*, *F. Muell. Fragm. iv. 58*.

Queensland. Rockingham Bay, *Dallachy*; Brisbane river, Moreton Bay, *F. Mueller*, *W. Hill*, *C. Stuart*; Ipswich, *Vernet*; also in *R. Brown's* collection without a label.

N. S. Wales. Clarence river, *Beckler*.

4. E. leptantha, Wight, Illustr. ii. 15, and Ic. t. 528. A tree? glabrous but pale, or the inflorescence hoary-pubescent. Leaves from oval-elliptical to oblong-lanceolate, obtusely acuminate, narrowed into a very short petiole, 4 to 5 in. long, finely penniveined. Flowers in short dense raceme-like cymes, almost reduced to heads, on the previous year's wood, either in the axils of the old leaves or at the nodes of the denuded branches, the peduncles and pedicels very short. Calyx-tube 5 to 6 lines long, very narrow, clavate, glabrous or powdery-pubescent, the free part short, slightly dilated, obscurely sinuate-toothed. Petals cohering and falling off together in a small calyptra. Stamens short. Ovules 12 to 20 in each cell. Fruiting cymes looser, the calyx cylindrical, but not seen ripe.—*Syzygium longistorum*, Wall. Cat. Herb. Ind. n. 3572.

Queensland. Rockingham Bay, *Dallachy*.—The species is also found in the Malayan Peninsula.

5. E. Jambolana, Lam. Dict. iii. 198. A tall shrub or tree, attaining sometimes a considerable size, quite glabrous. Leaves oval-oblong, obtuse or shortly acuminate, usually 4 to 6 in. long and 2 to 3 in. broad, but sometimes longer, very firm, shining, with numerous fine pinnate veins and reticulate between them, the principal ones confluent but not forming a regular intramarginal vein. Flowers not large, numerous, in broad trichotomous

panicles lateral on the old wood below the leaves, the ultimate cymes dense. Calyx sessile, turbinate-campanulate, the lobes very short and broad at the margin, almost entire when the flower is fully out. Petals cohering and falling off together in a calyptra. Berry roundish, from the size of a cherry to that of a pigeon's egg, usually with a single seed (*Roxburgh*).—Wight, Illustr. ii. 16, and Ic. t. 535, 624; *Syzygium Jambolanum*, DC. Prod. iii. 259; Wight and Arn. Prod. 329, with the synonyms adduced; *Eugenia Moorei*, F. Muell. Fragm. v. 33.

Queensland. Albany island, *W. Hill*.

N. S. Wales. Tweed river, *C. Moore*.

Very common in East India and the Archipelago, where the fruit is much eaten.

SECTION III. JAMBOSA.—Flowers in trichotomous panicles or cymes, calyx-tube more or less produced above the ovary, prominently lobed, the lobes usually persistent. Petals free and spreading.

This section, like *Syzygium*, is limited to the Old World, excepting where naturalized from cultivation.

6. ***E. cormiflora***, F. Muell. Fragm. v. 32. A tree of 30 to 40 ft., with a fine head (*Dallachy*). Leaves ovate-elliptical to almost oblong, obtuse or shortly acuminate, 3 to 5 in. long, narrowed into a petiole often $\frac{1}{2}$ in. long, not very thick, the principal veins rather distant and uniting irregularly far within the margin. Flowers large, in short trichotomous cymes, clustered on the trunk not above 3 ft. from the ground, the peduncles and pedicels very short. Calyx-tube urceolate, nearly $\frac{1}{2}$ in. long, very thick, the free part short, dilated at the top; lobes 4, very unequal, the largest nearly orbicular, 4 to 5 lines broad. Petals 4, free, broad, unequal, the largest above $\frac{1}{2}$ in. long. Stamens erect and more rigid than in most species, the outer ones above 1 in. long; anthers oblong. Ovary very thick and fleshy, with 2 small cells, each with about 8 ovules. Fruit ovoid-urceolate, crowned by the calyx-lobes, nearly 2 in. long.

Queensland. Rockingham Bay, *Dallachy*; Maryborough, *W. Hill*. The species appears to be very nearly allied to *E. Malaccensis*, Linn., common in India and the Archipelago.

7. ***E. Tierneyana***, F. Muell. Fragm. v. 14. A tree of 60 to 70 ft., with an ashy bark and spreading branches (*Dallachy*), quite glabrous. Leaves elliptical-oblong to almost obovate, shortly and obtusely acuminate, 3 to 6 in. long, narrowed into a short petiole, not very thick, the primary nerves rather distant and uniting far within the margin. Flowers rather large, not numerous, in loose trichotomous cymes on the old wood, in the axils of the old leaves or at the nodes of denuded branches, not exceeding the leaves and often several from the same node. Calyx-tube turbinate, about 3 lines long, rapidly contracted into a short pedicel; lobes 4, orbicular, distinct, unequal, the largest nearly 2 lines, the smallest scarcely above 1 line diameter. Petals nearly 4 lines diameter, spreading and separately deciduous. Stamens half as long again as the petals. Ovary in the narrow base of the calyx, with numerous ovules in each cell. Fruit globular, red, about $\frac{1}{2}$ in. diameter.

Queensland. Rockingham Bay, the red fruit produced in large quantities and making very good jam, *Dallachy*. The species is very nearly allied to the E. Indian *E. laurifolia*, Roxb., differing chiefly in the leaves narrowed at the base.

8. **E. grandis**, *Wight, Illustr.* ii. 17, and *Ic. t.* 614. A large and handsome tree, quite glabrous. Leaves from broadly oval to oval-oblong, obtuse or obtusely acuminate, 4 to 6 in. long, very firm and shining as in *E. Jambolana*, but thicker, and the veins more distant, forming a continuous intramarginal nerve. Flowers rather large and numerous, in dense trichotomous cymes, either terminal or in the upper axils. Calyx-tube thick, turbinate, shortly produced above the ovary, about 3 lines long; lobes 4, broad and short but unequal, wearing off after flowering. Petals usually spreading and falling off separately. Fruit globular, white, above 1 in. diameter, with 1 or 2 seeds, or smaller with 1 seed.—*E. cymosa*, Roxb. *Fl. Ind.* ii. 492, not of Lam.; *E. firma*, Wall. *Cat. Herb. Ind.* n. 3603; *Syzygium grande*, Walp. *Rep.* ii. 180; *Jambosa grandis* and *J. firma*, Blume, *Mus. Bot.* i. 108; *Eugenia fortis*, F. Muell. *Fragm.* v. 13.

Queensland. Lizard islands, *Banks and Solander*; Albany island, *W. Hill*; Rockingham Bay, *Dallachy*. The species is widely spread over the eastern provinces of India and the Archipelago. It is placed by Wight in the section *Syzygium* and by Blume in *Jambosa*, and is in some respects intermediate between the two.

9. **E. suborbicularis**, *Benth.* A tree attaining a considerable size, quite glabrous. Leaves broadly obovate or almost orbicular, very obtuse, 4 to 6 in. long, on a rather long petiole, coriaceous but not so thick and shining as in *E. grandis*, with numerous parallel diverging veins, confluent within the margin, and finely reticulate between them. Flowers large, in a short terminal trichotomous cyme. Calyx-tube narrow-turbinate, 7 to 8 lines long, broad and campanulate above the ovary; lobes 4, broad, the inner ones nearly $\frac{1}{2}$ in. diameter, with scarious margins, the outer ones rather smaller. Petals spreading and separately deciduous, the larger outer one nearly $\frac{3}{4}$ in. diameter. Stamens exceedingly numerous, readily separable in the bud into 4 parcels. Ovules ascending.

Queensland. Cape York and Endeavour river, *W. Hill*, N.E. coast, *A. Cunningham*.

10. **E. Wilsonii**, *F. Muell. Fragm.* v. 12. Glabrous. Leaves broadly lanceolate, acuminate, 5 to 6 in. long, rounded at the base, with a short petiole, finely and transversely penniveined. Flowers large, in a short dense terminal cyme almost contracted into a head. Calyx-tube very narrow-turbinate, about 4 lines long; lobes 4, rounded, about 1 line diameter and nearly equal. Petals about $1\frac{1}{2}$ lines diameter, separately deciduous. Stamens reddish-purple, the longer ones nearly 1 in. long. Anthers small. Ovary about half the length of the calyx-tube, concave at the top and scarcely fleshy. Ovules numerous in each cell, in 2 rows, ascending from a pendulous placenta. Fruit ovoid, about $\frac{1}{2}$ in. long, narrowed at the top and crowned by the small calyx-lobes. Seeds usually 2 or 3; cotyledons thick and fleshy but separate.

Queensland. Rockingham Bay, *Dallachy*.

11. **E. eucalyptoides**, *F. Muell. Fragm.* iv. 55. A tall shrub or small tree, glabrous and somewhat glaucous, with pendulous branches. Leaves lanceolate, often falcate, 4 to 6 in. long or more, narrowed into a very short petiole, remotely and irregularly pinniveined and reticulate, the principal veins more or less confluent at some distance from the edge. Flowers rather

large, few, in compact terminal cymes. Calyx-tube broadly turbinate, about 2 lines long, the free part broad; lobes 4, broadly orbicular, the inner larger ones almost as long as the tube. Petals orbicular, the larger outer ones fully 3 lines diameter, all separately deciduous. Ovary about half the length of the calyx; ovules incurved, acuminate. Fruit globular, 1-seeded, crowned by the calyx limb, but only seen young.—*Jambosa eucalyptoides*, F. Muell. *Fragm.* i. 226.

N. Australia. Gravelly places on the Victoria river, *F. Mueller*. From the appearance of the leaves, their shape and venation, they are probably vertical as in many species of *Eucalyptus*.

12. ***E. myrtifolia*, Sims, Bot. Mag. t. 2230.** An evergreen glabrous shrub. Leaves petiolate, varying from oval-oblong or almost obovate to oblong-elliptical or almost lanceolate, obtuse or acuminate, 2 to 3 in. long, cuneate or narrowed at the base, finely and almost transversely penniveined. Peduncles axillary, lateral or terminating short leafy shoots, bearing usually 3 or 5 flowers but sometimes more, in a loose trichotomous panicle. Calyx-tube turbinate, $1\frac{1}{2}$ to nearly 2 lines diameter; lobes very unequal, the largest nearly as long as the tube. Petals nearly 3 lines diameter, spreading and separately deciduous. Outer stamens nearly $\frac{1}{2}$ in. long. Ovary about $\frac{1}{2}$ the length of the calyx-tube, with a cluster of 8 to 10 ovules in each cell. Fruit red, ovoid or nearly globular, crowned by the calyx-limb.—*Bot. Reg.* t. 627; *Lodd. Bot. Cab.* t. 625; *E. australis*, Wendl. in Link, *Enum. Hort. Berol.* ii. 28; Colla in *Hort. Ripul. App.* t. 8; *Jambosa australis*, DC. *Prod.* iii. 287; *J. Thozetiana*, F. Muell. *Fragm.* i. 225.

Queensland. Moreton Bay, *F. Mueller*, *C. Stuart*; Wide Bay, *Bidwill*; Rockhampton, *Dallachy*, *Thozet*; Ipswich, *Nernst*.

N. S. Wales. Botany Bay, *Banks* and *Solander*; Hunter's River, *R. Brown*, *Maclean*; Hastings and Clarence rivers, *Becker*; Illawarra, *A. Cunningham*, *Shepherd*.

13. ***E. angophoroides*, F. Muell. *Fragm.* v. 33.** A glabrous tree. Leaves petiolate, oblong-lanceolate or elliptical, acuminate, mostly 2 to 3 in. long, narrowed at the base, finely penniveined as in *E. Ventenatii*, but the veins more prominent, and not so much reticulate as in *E. Armstrongii*. Flowers in a compound terminal corymbose panicle, shorter than the leaves. Buds obovoid, nearly sessile or tapering into a very short pedicel. Calyx-tube turbinate, scarcely more than 1 line long, and about $1\frac{1}{2}$ lines diameter; lobes or teeth either 5, all small and triangular, or one larger and more petal-like. Petals broad, about 1 line diameter, separately deciduous. Stamens about 2 lines long. Ovules several in each cell of the ovary. Fruit unknown.

Queensland. Rockingham Bay, *Dallachy*. With the habit and aspect of *E. Ventenatii*, but readily distinguished by the more sessile flowers as well as by the calyx and petals.

14. ***E. Armstrongii*, Benth.** A glabrous tree. Leaves petiolate, oblong-lanceolate, obtusely acuminate, narrowed at the base, mostly 3 to 5 in. long, more coriaceous than in *E. Ventenatii*, the intramarginal vein more distant from the edge. Flowers in a rather dense corymbose terminal panicle, much shorter than the leaves. Calyx-tube turbinate-campanulate, about $1\frac{1}{2}$ lines long; lobes short and very broad, the inner ones larger and often petal-



like on the margin. Petals quite separate, $1\frac{1}{2}$ to 2 lines diameter. Stamens rather longer than the petals. Ovary very short in the bottom of the calyx, with about 6 recurved ovules in each cell.

N. Australia. Port Essington, *Armstrong*; N. coast, *A. Cunningham*.

15. **E. oleosa**, *F. Muell. Fragm.* v. 15. A small handsome tree of 15 to 20 ft. (*Dallachy*), quite glabrous. Leaves from elliptical to lanceolate, acuminate, narrowed at the base, 2 to 3 or rarely 4 in. long, not very thick, the veins oblique and prominent underneath. Flowers white, remarkable for their long slender stamens, in trichotomous pedunculate cymes, either opposite at the base of the new shoots, or terminal in pairs, the peduncles, branches and pedicels slender. Calyx narrow-turbinate, nearly 3 lines long, tapering into a pedicel, sometimes short, sometimes as long as the calyx; lobes 4, ovate or broad, about $\frac{1}{2}$ line long. Petals quite separate, about $1\frac{1}{2}$ lines diameter. Filaments very numerous and fine, $\frac{1}{2}$ in. long or more. Ovary not half so long as the calyx-tube, with about 8 ovules in each cell; style long and slender. Fruit globular.

Queensland. Rockingham Bay, *Dallachy*. Very near *E. rivularis*, *Seem.*, from the Fiji Islands, but the veins of the leaves are not nearly so numerous or close, and more oblique, and the stamens nearly twice as long as in that species.

16. **E. (?) Dallachiana**, *F. Muell. Herb.* Leaves broadly ovate, 3 to 5 in. long, of a thinner consistence than in most *Eugenia*s, and the one or two lower pairs of veins more prominent than the others, and continued almost to the apex of the leaf, so as to make it appear almost triplinerved or quintuplinerved like some *Rhodomyrti*. Cymes axillary, pedunculate, rather loose, and apparently only few-flowered, but the specimens seen are only in young fruit. Calyx-tube in that state nearly globular, about 3 lines diameter, not produced above the ovary; lobes 4, broad, spreading, unequal, all shorter than the tube. Petals not seen. Remains of stamens those of *Eugenia*. Ovary 2-celled, with rather numerous ovules in each cell, but only one or two from the same cell enlarged. Young seed apparently that of *Eugenia*, but not far enough advanced to determine.

Queensland. Rockingham Bay, *Dallachy*. The aspect of this plant is very different from that of any *Eugenia* known to me, yet, as far as the specimens go, they supply no character to separate it from the genus.

TRIBE IV. LECYTHIDÆ.—Ovary divided more or less completely into 2 or more cells. Fruit woody fibrous or fleshy, indehiscent or opening in an operculum at the top. Leaves alternate, not dotted.

SUBTRIBE I. BARRINGTONIÆ.—Stamens inserted on a regular broad or cup-shaped disk (not unequally produced on one side as in the American *Eulecythidæ*). Fruit fibrous or fleshy but not woody. Calyx usually almost, but not quite valvate.

44. **BARRINGTONIA**, Forst.

(*Stravadium*, *Juss.*)

Calyx-tube ovoid or turbinate, not at all or scarcely produced above the ovary, the limb either closed in the bud and splitting into 2 to 4 valvate segments or rarely with 3 or 4 lobes, imbricate in the bud. Petals 4 or 5,

adhering at the base to the staminal cup. Stamens numerous, in several series, shortly united at the base into a ring or cup; anthers small, with parallel cells opening longitudinally. Ovary inferior, with an annular disk on the top within the stamens, 2- to 4-celled, with 2 to 8 ovules in each cell, horizontal or pendulous, in 2 rows; style filiform with a small stigma. Fruit pyramidal ovoid or oblong, hard and fibrous, indehiscent. Seed usually solitary, with a thick testa; embryo undivided, consisting of a thick woody stratum, and a more or less distinct pith in the centre.—Trees. Leaves alternate, usually crowded at the ends of the branches, penniveined and not dotted. Flowers in terminal or lateral spikes or racemes. Bracts small and deciduous.

The genus is confined to the tropical regions of the Old World. The Australian species are both widely dispersed over the Indian Archipelago, and one is also common in East India.

Leaves often above 1 ft. long. Flowers large, in short racemes. Stamens 2 to 4. in. long. Fruit large 1. *B. speciosa*.

Leaves under 6 in. long. Flowers small, in long racemes. Stamens 3 to 4 lines long. Fruit small 2. *B. acutangula*.

1. ***B. speciosa*, Linn. f.; DC. Prod. iii. 288.** A large handsome tree. Leaves sessile, obovate, entire, attaining more than 1 ft. in length. Flowers very large, in short terminal racemes, the rhachis thick, the pedicels 1 to 2 in. long. Calyx deeply divided into 2 or 3 oval-oblong concave almost leaf-like segments, above 1 in. long. Petals from half as long again to twice as long as the calyx-segments. Stamens very numerous, red, 2 to 4 in. long. Ovary imperfectly 4-celled, with about 6 ovules in each cell. Fruit large, pyramidal, 4-angled, crowned by the persistent calyx-lobes.—Wight, Ic. t. 547.

Queensland. Cape York and Dayman's Island, Endeavour Straits, *W. Hill*.—Widely dispersed over the Indian Archipelago and Pacific Islands. The Australian specimens are imperfect, but there is very little doubt of their identity with the Archipelago plant, from which the above description is taken.

Some specimens, named *B. calyptrata*, by R. Br., from the Lizard Islands, *Banks and Solander*, have the foliage nearly of *B. speciosa*, but the flowers in long racemes like those of *B. acutangula*. None are fully out, but they appear to be intermediate in size between those of *B. speciosa* and *B. acutangula*.

2. ***B. acutangula*, Gærtn. Fruct. ii. 97. t. 101.** A large handsome tree. Leaves from obovate or oblong-cuneate to almost elliptical, obtuse or shortly acuminate, rarely much above 4 in. long, serrulate or entire, narrowed into a short petiole. Flowers red, rather small, in very long slender pendulous racemes. Bracts oblong, very deciduous. Pedicels 2 to 4 lines long. Calyx-tube ovoid-globose, about 1 line long; lobes 4, rather longer than the tube, orbicular. Petals about twice as long as the calyx-tube. Stamens not much longer than the petals. Ovary 2-celled, with 2 pendulous ovules in each cell. Fruit oblong, 4-angled, 1 in. long or rather more.—Wight and Arn. Prod. 333; *Stravadiu rubrum*, DC. Prod. iii. 289.

N. Australia. Rivulets of M'Adam range and Fitzmaurice river, *P. Mueller*.—Common in most parts of India as well as in the Archipelago. I find but 2 cells to the ovary both in the Indian and the Australian specimens.

45. CAREYA, Roxb.

Calyx-tube thick, turbinate or ovoid, not produced above the ovary, the



limb deeply 4-lobed. Petals 4, spreading. Stamens numerous in several series, quite free, the outermost longer ones or the innermost shorter ones or both without anthers, the intermediate ones or nearly all perfect; anthers small, with parallel cells opening longitudinally. Ovary inferior, 4- or rarely 5-celled, with several small ovules in 2 rows in each cell; style elongated, with a somewhat capitate or slightly 4-lobed stigma. Fruit globular, fleshy, with a hard rind, crowned by the calyx-limb. Seeds several, enveloped in a fleshy pulp, and usually irregularly scattered; testa thick; embryo undivided. —Trees, or in one instance an undershrub. Leaves alternate, usually crowded at the ends of the branches, penniveined and not dotted. Flowers large, in racemes or interrupted spikes, usually short.

The genus comprises three E. Indian species, one of which is supposed to be the same as the Australian one.

1. **C. arborea**, Roxb. *Pl. Corom.* iii. 14. t. 218, and *Fl. Ind.* ii. 638.

—Var. (?) *australis*. A tree attaining a large size. Leaves from ovate and shortly acuminate to obovate and very obtuse, minutely crenulate or entire, not above 4 in. long in the Australian specimens seen, but much larger in Indian ones. Flowers large, pedicellate, few together in very short cymes, terminating short leafy shoots. Calyx-lobes 4, orbicular, unequal, the larger ones minutely ciliolate. Petals when fully out obovate-oblong, in some specimens 2 in. long, in others much smaller. Perfect stamens as long as the petals, without any barren filaments outside, but a few short ones inside without anthers. Ovary 4-celled, with 10 to 12 ovules in each cell. Fruit broadly ovoid, $1\frac{1}{2}$ in. long or more, not at all angled, crowned by the persistent calyx-lobes.

N. Australia. Brunswick Bay, N.W. coast, *A. Cunningham*; plains at the mouth of the Victoria river, *F. Mueller*; Islands of the Gulf of Carpentaria, *R. Brown*, *Henne*.

Queensland. Cape Grafton, *Banks and Solander*; Estuary of the Burdekin, *Fitzalan*; Rockhampton, *Dallachy*.

I have some doubts whether this be really identical with Roxburgh's *C. arborea* from the Coromandel coast, figured also in Wight, *Illustr.* ii. t. 99, 100, which has usually much larger leaves, and is said to have the flowers closely sessile, very numerous ovules in each cell of the ovary, and the fruit globular. Our specimens of the Indian plant are very imperfect, and those of the Australian one in *F. Mueller's* as well as in the Hookerian herbarium, although numerous from various localities, are for the most part fragmentary. *R. Brown's* alone are in fruit as well as in flower.

F. Mueller proposes to unite *Careya* with *Barringtonia* on account of the very few anantherous stamens in *C. arborea* (perhaps sometimes none), showing a connecting link between the two genera. But as far as known, there appears to be also a marked difference in the shape and structure of the fruit in the two cases, besides some minor differences, of the constancy of which we have at present no means of judging.

ORDER XLIX. MELASTOMACEÆ.

Calyx-tube enclosing the ovary, and either cohering with its angles, leaving intermediate cavities, or entirely free or more or less adnate to it, the limb entire or with 3 to 5 or rarely 6 lobes or teeth, usually imbricate in the bud. Petals as many as calyx-lobes, inserted at the orifice of the calyx-tube, imbricate (usually contorted) in the bud. Stamens usually twice as many, sometimes only as many as petals and inserted with them, the filaments curved

down in the bud; anthers 2-celled, opening in 1 or 2 pores at the top or very rarely in longitudinal slits, and before flowering their tips are usually contained in the cavities between the ovary and calyx, the connective often variously extended or thickened. Ovary enclosed in the calyx-tube and adnate to it, or more or less free, with 2 to 6 or rarely more cells, with the placenta in the axis, or rarely 1-celled by the abortion of the partitions. Style simple, with a minute or capitate or peltate stigma. Ovules several, rarely 2 only to each placenta, anatropous. Fruit enclosed in the calyx or combined with it, either succulent and indehiscent, or bursting irregularly, or capsular and opening in as many valves as there are cells. Seeds usually numerous and small, straight or *cochleate* (*i. e.* curved somewhat like an univalve shell), without albumen; testa coriaceous, crustaceous or membranous. Embryo straight or curved; cotyledons plano-convex or thick and variously folded; radicle short.—Herbs shrubs or rarely trees. Leaves opposite, simple, petiolate, 3- to 11-nerved, or in *Memecyleæ* 1-nerved and penniveined, entire or rarely serrulate. Stipules none. Flowers usually in terminal panicles or clusters, rarely axillary or solitary.

A large Order, chiefly American, and most abundant within the tropics, a considerable number also in tropical and subtropical Asia, especially in the Eastern Archipelago, and a few in tropical and southern Africa. The four Australian genera are all Asiatic and three of them also African.

TRIBE I. Osbeckiæ.—*Leaves with 3, 5 or more ribs. Anthers opening in a single terminal pore. Ovary more or less adherent, except the convex or conical summit, 2- to 6-celled. Fruit capsular or rarely pulpy. Seeds cochleate.*

Anthers all similar and equal or nearly so. Fruit capsular, opening in valves.

Calyx-lobes 4, rarely 5, with bristle-like appendages between them.

Anthers without any or scarcely any appendage at the base 1. OSBECKIA.

Calyx-lobes 5 or 6, without appendages between them. Anthers with a short 2-lobed inflexed appendage at the base 2. OTANTHERA.

Anthers alternately smaller or dissimilar. Fruit succulent or pulpy, bursting irregularly 3. MELASTOMA.

TRIBE II. Memecyleæ.—*Leaves with the midrib prominent, the veins pinnate or inconspicuous. Anther-cells adnate to a much thickened connective, and opening in separate slits or pores. Ovary adnate, 1-celled, with a central placenta. Fruit a berry 4. MEMECYLON.*

1. OSBECKIA, Linn.

Calyx-tube ovoid globular or urceolate; lobes or teeth 4 or 5, deciduous, with appendages between them, which are usually bristle-like, terminating in a tuft of hairs. Petals obovate. Stamens twice as many as petals, all equal and similar or nearly so; anthers opening in a single pore at the summit, and without any or scarcely any appendage at the base of the connective. Ovary 4- or 5-celled, crowned with bristles. Fruiting-calyx usually truncate after the fall of the lobes; capsule opening at the top in as many valves as there were cells to the ovary. Seeds cochleate.—Herbs undershrubs or rarely shrubs. Leaves sessile or petiolate, 3-, 5- or 7-nerved. Flowers usually terminal, in clusters or short racemes, often forming leafy panicles, rarely solitary. Calyx-tube often more or less covered with bristles or ciliate scales.

The genus comprises a few African species besides a considerable number from tropical Asia and the Archipelago, including one of the Australian ones, the other Australian species is endemic.

Flowers 4-merous. Scales of the calyx with long bristles, 5 alternating with the lobes and sometimes a few below the middle of the tube.
Anthers with long slender beaks 1. *O. chinensis*.

Flowers 5-merous. Scales of the calyx with short bristles, very numerous and completely covering the tube. Anthers with short beaks 2. *O. australiana*.

1. ***O. chinensis***, *Linn. Spec. Pl.* 490 (*not Bot. Reg. nor Bot. Mag.*). A herb undershrub or shrub, from 1½ to 3 ft. high, glabrous or with a few short stiff hairs. Leaves very shortly petiolate, linear linear-oblong or almost lanceolate, 1 to 2 in. long. Flowers several together, sometimes very few, forming sessile terminal clusters, almost condensed into heads. Calyx-tube about 3 lines long or rather more; lobes 4, not quite so long as the tube, broad or narrow, acute, ciliate, but without any terminal tuft of hairs, with 4 accessory ciliate scales inserted between and a little below them on the outside, and occasionally a few ciliate scales on the tube below the middle. Petals 4. Anthers produced into a slender beak. Capsule 4-celled.—Benth. *Fl. Hongk.* 115, with the synonymes adduced; *F. Muell. Fragm.* iv. 160; *O. angustifolia*, Don; *Wall. Pl. As. Rar.* iii. t. 251.

Queensland. Rockingham Bay, *Dallachy*. The species extends over the Indian Archipelago and the eastern provinces of India to S. China and Formosa.

2. ***O. australiana***, *Naud. in Ann. Sc. Nat. ser. 3.* xiv. 59. A shrub, attaining several feet, more or less scabrous-pubescent. Leaves linear or lanceolate, 3-nerved, mostly 1 to 2 in. long or smaller on the side-branches. Flowers usually 3 to 7, at the ends of the branches, in a cyme, sessile, but not so dense as in *O. chinensis*. Calyx-tube nearly globular, about 3 lines diameter, densely covered with tufts of rather short bristles (bristly scales); lobes 5, ovate or ovate-lanceolate, much shorter than the tube, ciliate but without a terminal tuft of hairs. Petals twice as long as the calyx-tube. Anthers with a short broad beak. Capsule 5-celled.

N. Australia. Melville Island, *Fraser*; M'Adam Range and Arnhem's Land, *F. Mueller*; Port Essington, *Armstrong*.

2. OTANTHERA, Blume.

(*Lachnopodium*, *Blume*.)

Calyx-tube ovoid; lobes 5 or 6, deciduous, alternating with as many short bristly scales or appendages. Petals obovate. Stamens twice as many as petals, all equal and similar; anthers opening in a single pore on the summit, the connective produced at the base into a short 2-lobed appendage turned up on the inner face. Ovary 5- or 6-celled, crowned with bristles. Fruiting-calyx truncate after the fall of the lobes; capsule (in the Australian species) opening at the top in as many valves as there were cells to the ovary, in other species more pulpy and less regularly dehiscent. Seeds cochleate, small and very numerous.—Shrubs more or less strigose, with the habit of the smaller-flowered *Melastomas*. Leaves 5- or 7-nerved. Flowers in terminal trichotomous cymes or panicles.

The genus consists of very few species natives of the Indian Archipelago, one of which, the same as the Australian one, differs slightly from the others in the fruit drier and more capsular, and was therefore distinguished by Blume under the name of *Lachnopodium*.

1. **O. bracteata**, Korth. *Verh. Nat. Gesch. Bot.* 235. t. 51. A shrub of several feet, the branches more or less covered with pale-coloured or rusty hairs or bristles. Leaves petiolate, ovate or ovate-elliptical, mostly 3 to 5 in. long, membranous, rough with short strigose hairs. Flowers few, in short terminal trichotomous cymes, the peduncles and pedicels with a few small leaves at the base of the cyme, and a short, broad, concave, almost cordate bract at the base of each branch or pedicel. Calyx-tube about 2 lines long, densely covered with small scales, divided each into 3 to 5 long erect cilia or bristles; lobes 5 or 6, linear, scarcely so long as the tube, ciliate with a few long bristles, the intermediate bristly scales short and obtuse. Petals white or pink, 5 to 6 lines long, each with a bristle at the end. Ovary adnate to about half the calyx-tube, the convex summit very bristly. Fruit nearly globular, crowned by the scars of the calyx-lobes. Capsule apparently dry, the placentas projecting far into the cells. —Naud. in *Ann. Sc. Nat. ser.* 3. xiii. 354; *Lachnopodium bracteatum*, Blume, *Mus. Bot.* i. 56.

Queensland. Dalrymple Creek, Rockingham Bay, *Dallachy*. Also in Sumatra. Korthals figures the calyx-lobes rather broad; I find them narrow, as described by Blume, both in the Sumatran and the Australian specimens. *Lachnopodium rubro-limbatum*, Blume, *Mus. Bot.* i. 56, taken up from the *Melastoma rubro-limbatum*, a garden plant, figured in Link and Otto, *lc. Pl. Sel.* 89. t. 41, appears to be the same species.

3. MELASTOMA, Linn.

Calyx-tube campanulate or ovoid; lobes or teeth 5 or rarely 6, deciduous, with or without small alternate accessory lobes or appendages. Petals obcordate or obovate. Stamens twice as many as petals; anthers elongated, opening at the top in a single pore, very unequal, 5 larger, with the connective produced below into a long appendage incurved and 2-lobed or 2-pointed at the lower end, 5 smaller, with the appendage shorter or wanting. Ovary 5- or rarely 6-celled, crowned with a few stiff hairs or bristles. Fruit truncate after the fall of the calyx-lobes, the capsule or berry more or less succulent or pulpy and bursting irregularly. Seeds cochleate. —Shrubs, more or less strigose or hairy. Leaves usually ovate, 3- or more-nerved. Flowers terminal, solitary or few together in cymes, often large and showy; the calyx usually covered with bristles or scales.

A considerable genus, extending over tropical Asia and the Pacific islands. The only Australian species is a common one in India and the Archipelago.

1. **M. malabathricum**, Linn. *Spec. Pl.* 559, var. *polyanthum*. A shrub of a few feet in height, more or less clothed with hairs or bristles, often very rigid and scale-like on the branches, rigid and strigose on the upper side of the leaves, longer and softer on the under side, but sometimes nearly all rigid and scale-like, or nearly all long and soft. Leaves petiolate, from ovate almost cordate and 6 in. long, to oblong-lanceolate and 3 in. long, with 3 or 5 nerves besides a fine intramarginal one. Flowers usually about 5 to 11 in terminal almost sessile cymes. Bracts very deciduous, from large and broadly ovate to small and narrow-lanceolate. Calyx-tube ovoid-globular, 2 to 3 lines long,







densely covered with appressed chaffy scales or bristles; lobes usually 5, from ovate to lanceolate, more or less acuminate, longer and sometimes much longer than the tube or rarely rather shorter, alternating with 5 small subulate or short chaffy scales or accessory lobes. Petals large, pale purple or white. Fruit nearly globular, 3 to nearly 4 lines diameter. Seeds imbedded in a purple pulp.—*M. polyanthum*, Blume, Mus. Bot. i. 52. t. 6; *M. denticulatum*, Labill. Sert. Austr. Caled. i. 65. t. 64; *M. Novæ-Hollandiæ*, Naud. in Ann. Sc. Nat. ser. 3. xiii. 290.

N. Australia. Between Providence Hill and M'Adam Range, and Adelaide river, *F. Mueller*; Port Essington, *Armstrong*.

Queensland. Endeavour river, *Banks* and *Solander*, *A. Cunningham*; Brisbane river, Moreton Bay, *A. Cunningham*, and others; Mount Elliott, *Dallachy*.

N. S. Wales. Clarence river, *Wilcox*.

The typical *M. malabathricum* is usually distinguished by its larger flowers, with the bracts and calyx-lobes larger in proportion, but some of the Moreton Island specimens have them nearly as large as the Indian ones. Many Australian specimens correspond exactly either with those of *M. polyanthum* from the Archipelago, or with those of *M. denticulatum*, from New Caledonia, and it is probable that the species should include the whole of the twenty-four adopted or proposed by Naudin, Ann. Sc. Nat. ser. 3. xiii. 283 to 293, as "Species magis ad *M. malabathricum* vergentes ideoque difficilius distinguendæ," besides several of the "Species addendæ," p. 294, not seen by him. The characters are generally most trifling.

4. MEMECYLON, Linn.

Calyx-tube hemispherical or campanulate, the limb entire or obtusely 4-lobed, rarely 5-lobed. Petals 4 or rarely 5, ovate or orbicular. Stamens twice as many as petals, all equal and similar; anthers short, with a thick connective, forming a conical spur at the base, the cells opening in longitudinal slits. Ovary entirely adnate to the calyx-tube, 1-celled, with 6 to 12 ovules, verticillate round a short central placenta; style filiform, with a small stigma. Fruit a berry, crowned by the calyx-teeth or border, or by a circular scar only. Seeds solitary or rarely 2 or 3; testa somewhat crustaceous; cotyledons very much convolute or variously folded, usually enclosing the radicle.—Trees or shrubs. Leaves coriaceous, with 1 prominent midrib and pinnate veins often scarcely perceptible. Flowers usually small, in axillary clusters or cymes.

The genus is spread over the tropical regions of the Old World, the species especially numerous in Ceylon and the Indian Archipelago. The only Australian one is also in Ceylon and the Indian Peninsula.

1. ***M. umbellatum*, Baïm. Fl. Ind. 87.** A bushy or divaricately-branched shrub, quite glabrous. Leaves shortly petiolate, from broadly ovate to ovate-lanceolate, obscurely and obtusely acuminate, 1 to 2 in. long, of a dark green and shining above, paler or sometimes yellowish underneath, the veins usually quite inconspicuous. Peduncles axillary, very short, bearing an umbel-like or shortly racemose cluster of small flowers, on slender pedicels of 1 line or rather more. Adnate part of the calyx-tube very short, the free part broadly campanulate, less than 1 line diameter, broadly and shortly 4-lobed. Petals ovate, acute, about 1 line long. Stamens exceeding the petals. Fruit green, smooth, nearly globular, about 3 or rarely 4 lines diameter, crowned by the small persistent calyx-limb; pericarp slightly fleshy. Seed

solitary, globular; cotyledons fleshy and very much contortuplicate.—Thwaites, Enum. Ceyl. Pl. 111; *M. ramiflorum*, Lam. Dict. iv. 88, DC. Prod. iii. 6 (at least as to the Indian plant); Wight, Illustr. i. 214. t. 93 (*M. tinctorium*, Kœn. on the plate); *Myrcia*? *Australasice*, F. Muell. Rep. Burd. Exped. 7.

N. Australia. North-west coast, *A. Cunningham*.

Queensland. Estuary of the Burdekin, *Fitzalan*; Mount Elliott, Edgcombe and Rockingham Bays, *Dallachy*, Cleveland Bay, *Bowman*.

The species is common in Ceylon and the Indian Peninsula, and perhaps also in the Mauritius.

Specimens of a tree from the Clarence river, *Beckler and Wilcox*, and from Richmond river, *C. Moore*, in fruit only and bearing F. Mueller's MSS. name of *Nelitris* (?) *ingens*, may possibly belong to a *Memecylon*, although unlike any species known to me. The leaves are penniveined, not unlike those of *Eugenia myrtifolia*, but rather larger and not dotted. The fruits are in cymes, either terminal or in the upper axils, globose, very hard, about 1 in. diameter, marked with the scar of the calyx-limb. Seed 1 only, globular. Embryo thick and hard, the cotyledons very complicatedly folded and contortuplicate as in *Memecylon*.

ORDER L. LYTHRARIÆ.

Calyx-tube free, but usually enclosing the ovary; lobes or primary teeth 4, 5, or sometimes more, very rarely 3, valvate in the bud, the sinus sometimes produced externally into as many accessory teeth. Petals as many as primary calyx-teeth or lobes, rarely deficient, inserted at the top of the calyx-tube, usually crumpled in the bud. Stamens as many or twice as many as petals or fewer, or rarely indefinite, inserted in the calyx-tube at various heights; filaments inflected in the bud; anthers versatile, with parallel cells opening longitudinally. Ovary free from the calyx, but usually enclosed in its tube, 2- or more-celled, or rarely 1-celled by the abortion of the partitions; style simple, the stigma capitate or rarely 2-lobed. Ovules usually numerous, anatropous, attached to the axis, or very rarely parietal. Fruit a membranous coriaceous or hard capsule, variously dehiscent, enclosed in or surrounded by the persistent calyx, the valves usually detaching themselves from the central persistent placentiferous column. Seeds without albumen; testa coriaceous, membranous or rarely thick; embryo straight; cotyledons oblong or orbicular-cordate; radicle short, or rarely cotyledons small and radicle long.—Herbs shrubs or trees. Leaves opposite, verticillate or sometimes alternate, entire, without stipules. Flowers in axillary or terminal panicles cymes or clusters, rarely solitary.

A considerable Order, some of the herbaceous genera spread over the greater part of the globe, the larger woody-stemmed ones confined to the tropics in the Old or the New World. The five Australian genera are all Asiatic, three of them at least are also African, and the two herbaceous genera extend to America and Europe.

Annual or perennial herbs, very rarely becoming woody at the base.

Calyx short, membranous, the ribs inconspicuous or only as many as primary teeth; accessory teeth minute or none. Petals very small or none

1. AMMANNIA.

Calyx narrow, with twice as many ribs as primary teeth; accessory teeth prominent. Petals usually conspicuous.

2. LYTHRUM.

Shrubs or trees.

Stamens twice as many as petals.

- Calyx-lobes 6, with accessory teeth. Capsule enclosed in the calyx.
 Maritime shrub, with solitary flowers in the upper axils . . . 3. PEMPHIS.
 Calyx-lobes 4, without accessory teeth. Capsule exerted. Flowers
 in leafy panicles . . . 4. LAWSONIA.
 Stamens indefinite. Calyx-lobes 4 to 8, without accessory teeth. Fruit
 large, fleshy. Flowers large, 1 to 3 in the upper axils . . . 5. SONNERATIA.

1. **AMMANNIA**, Linn.

(Rotala, Linn.; Ameletia, DC.)

Calyx membranous, short, the ribs not at all, or the primary ones only, prominent, with 4 or 5, rarely 3 or 6 primary teeth, without any or with very small external accessory ones. Petals small and fugacious or none. Stamens as many as primary calyx-teeth, or twice as many or fewer, inserted towards the middle of the tube or lower down. Ovary 2- to 5-celled, or 1-celled by the abortion of the partitions. Style often short, with a capitate stigma. Capsule included in the persistent calyx or protruding from it, opening in septical valves or bursting irregularly. Seeds very small.—Annual herbs, chiefly frequenting wet situations, usually glabrous, with a 4-angled stem. Leaves opposite or verticillate. Flowers very small, subsessile or pedicellate, solitary or in trichotomous cymes or clusters, with a pair of small bractcoles under the calyx, sometimes very minute or scarcely conspicuous.

A considerable genus, chiefly tropical and Asiatic or African, with a few species from tropical or Northern America, or from more temperate Asia. Of the seven Australian species two are endemic, the others widely spread over tropical Asia, and at least four extend into Africa.

- Flowers sessile, solitary in the axils. Capsule opening in as many valves as cells. (**Rotala**.)
 Leaves narrow, in whorls of 3 to 8. Capsule 3- or 4-valved . . . 1. *A. Rotala*.
 Leaves ovate-lanceolate or oblong, opposite or rarely in threes. Capsule 3- or 4-valved . . . 2. *A. pentandra*.
 Leaves orbicular, opposite. Capsule 2-valved . . . 3. *A. diandra*.
 Flowers pedicellate, solitary or in cymes. Capsule bursting irregularly or transversely.
 Flowers solitary, on long filiform pedicels. Leaves oblong-linear. Petals present . . . 4. *A. crinipes*.
 Flowers 1 to 3, on short axillary peduncles. Leaves broadly oblong, petiolate. No petals . . . 5. *A. triflora*.
 Flowers several in axillary cymes.
 Leaves narrowed at the base. Calyx-lobes triangular. No petals. 6. *A. indica*.
 Leaves dilated or cordate, auriculate at the base. Calyx-teeth very short. Petals present.
 Capsule under 1 line diameter. Stamens 4 or fewer . . . 7. *A. multiflora*.
 Capsule about 1½ lines diameter. Stamens above 4, usually 6 to 8 . . . 8. *A. auriculata*.

1. **A. Rotala**, *F. Muell. Fragm.* iii. 108. A slender annual, simple or slightly branched, often creeping at the base, and not above 3 in. long in the Australian specimens, twice as much in some Indian ones. Leaves in whorls of 3 to 6 or sometimes more, linear, not exceeding 3 or 4 lines. Flowers minute, nearly sessile and solitary in the axils. Calyx smooth and membranous, not above ½ line diameter, with 5 or sometimes 4 or 3 acute teeth without accessory ones. Petals none or minute and fugacious in the Austra-

lian specimens, nearly as long as the calyx-teeth in some Indian ones. Stamens 3 (4 or 5?), inserted near the base of the calyx and not exceeding it. Ovary 1-celled or more or less divided into 3 by very thin evanescent partitions. Style short. Capsule 3-valved.—*Rotala verticillaris*, Linn. Mant. 195; DC. Prod. iii. 76; Wight, Ic. t. 260; *Rotala apetal*a, F. Muell. *Fragm.* iii. 108.

N. Australia. Beds of streams periodically inundated, Sturt's Creek, F. Mueller. Spread over E. India and the Archipelago.

2. **A. pentandra**, *Rowb. Fl. Ind.* i. 427. Annual or perhaps a perennial of short duration, often shortly creeping at the base, with ascending or erect stems, 6 to 8 in. high and scarcely branched when luxuriant, but often only 2 or 3 in. and much branched. Leaves opposite or very rarely the floral ones in threes, from ovate-cordate to oblong and almost cuncate, acute or obtuse, the larger ones $\frac{1}{2}$ in. long, but usually not above $\frac{1}{4}$ in., the floral ones always exceeding the flowers. Flowers solitary in the axils, sessile or nearly so. Calyx scarcely above $\frac{1}{2}$ line diameter, with 5 or rarely 4 or 3 short lobes, without accessory teeth. Petals very small or none. Stamens 5, or sometimes 4 or 3 inserted near the base of the calyx and not exceeding its lobes. Capsule opening in 3 or rarely 4 valves.—DC. Prod. iii. 79; W. and Arn. Prod. 305, with the synonyms adduced; Blume, Mus. Bot. ii. t. 46; *Rotala Roxburghiana*, Wight, Ic. t. 260.

Queensland. Endeavour river, R. Brown; water-holes, Moreton Bay, C. Stuart.

Var. *decussata*. Smaller and more branched. Petals usually none.—*Rotala decussata*, DC. Prod. iii. 76; *Ortegioides decussata*, Soland. in Herb. Banks; *Entelia ummannioides*, R. Br. Herb.; *Ammannia illecebroides*, Arn. in Wight, Cat. n. 2317.

N. Australia. Islands of the Gulf of Carpentaria, R. Brown; Victoria river, F. Mueller; Port Essington, Armstrong.

Queensland. Shoalwater Bay, R. Brown; E. coast, Banks and Solander.

3. **A. diandra**, F. Muell. *Fragm.* iii. 108 (under *Ameletia*). Erect or creeping at the base, branched or nearly simple, not exceeding 6 in. but not so slender as the preceding species. Stem leaves sessile, orbicular, very obtuse, cordate at the base, 2 to 3 lines diameter, the floral ones scarcely smaller, orbicular or ovate, and often very close, forming imbricate decussate spikes. Flowers solitary in the axils, sessile or nearly so. Calyx small, very thin and membranous, somewhat 4-angled, with 4 acute lobes shorter than the tube, without accessory teeth. Petals rudimentary. Stamens usually 2, inserted below the middle of the tube. Ovary 1-celled or imperfectly 2-celled. Capsule opening in 2 valves.

N. Australia. Around the lagoons and moist banks of the Upper Victoria and Fitzmaurice rivers, F. Mueller. The specimens are all in fruit; in some the calyx is scarcely 1 line long and shorter than the oblong capsule; in others the calyx is nearly 2 lines long, with a very much shorter globular capsule. In all I have found either small rudimentary petals or their scars, and the stamens adherent to about $\frac{1}{3}$ of the calyx.

4. **A. crinipes**, F. Muell. in *Trans. Phil. Soc. Vict.* iii. 49. A slender branching annual of 3 or 4 in. Leaves linear-oblong, obtuse, 2 to 3 lines long, narrowed at the base. Pedicels solitary in the axils, filiform, 1-flowered, often exceeding $\frac{1}{2}$ in. Calyx about 1 line long, narrowed at the base, broader and somewhat folded at the orifice, truncate, slightly sinuate and readily splitting into 4 retuse lobes. Petals 4, small, white, orbicular. Stamens 4 or

fewer, shorter than the calyx and inserted about the middle. Ovary 2-celled; stigma large. Fruiting-calyx broad; capsule ovoid or nearly glo-bular, as long as the calyx, bursting irregularly.

N. Australia. About pools and lagoons, between the Victoria and Fitzmaurice rivers, *F. Mueller*. This has the solitary flowers of the section *Rotala*, with the capsule of the many-flowered true *Ammannias*, and differs from the whole genus in the long filiform pe-duncles.

5. **A. triflora**, *R. Br. Herb.* A diffuse much-branched annual, with slender ascending stems of $\frac{1}{2}$ to 1 ft., minutely hoary-pubescent or glabrous. Leaves distinctly petiolate, oval-oblong, narrowed or rounded at the base, mostly under $\frac{1}{2}$ in. long. Peduncles short, with 1 to 3 sessile or very shortly pedicellate flowers, much larger than in *A. indica*. Calyx-tube broadly cam-panulate, with 4 broad triangular lobes, and the sinuses produced into as many short horizontally spreading accessory lobes. Petals none. Stamens 4, inserted in the middle of the calyx-tube. Capsule 2-celled, depressed, irregularly circumsciss.

N. Australia. Islands of the Gulf of Carpentaria, *R. Brown*.

6. **A. indica**, *Lam. Illustr. n.* 1555 ?; *DC. Prod.* iii. 77. Erect, more or less branched, and often exceeding 2 ft. in height. Leaves lanceo-late or oblong-linear, acute, narrowed at the base, mostly $\frac{1}{2}$ to 1 in. long, but luxuriant ones sometimes longer, and those of the side branches smaller. Flowers very small, in little axillary cymes or clusters, the pedicels slender, but rarely 1 line long, and the common peduncle very short or scarcely any. Calyx broadly campanulate, usually about $\frac{3}{4}$ line diameter, with 4 short broad triangular lobes, without accessory teeth. Petals none. Stamens 2 to 4. Ovary 2-celled. Capsule depressed-globular, usually exceeding the calyx, and bursting irregularly.—*W. and Arn. Prod.* 305; *Blume, Mus. Bot.* ii. 133. t. 46; *A. vesicatoria*, *Roxb. Fl. Ind.* i. 426; *DC. Prod.* iii. 78; *W. and Arn. Prod.* 305.

N. Australia. Careening and Brunswick bays, N.W. coast, *A. Cunningham*; *Nichol Bay, Gregory's Expedition*; Victoria river and Sturt's Creek, *F. Mueller*.

Queensland, *Bowman*; Endeavour river, *Banks and Solander*; Shoalwater Bay, *R. Brown*.

S. Australia. Cooper's Creek, *Howitt's Expedition*.—Common in tropical and sub-tropical Africa and Asia. Lamarck describes the leaves as decurrent, but this is undoubtedly the species to which his plant has been referred by De Candolle and others.

7. **A. auriculata**, *Willd.*; *DC. Prod.* iii. 80. Erect and not much branched, usually 6 in. to 1 ft. high, and coarser than the other Australian species, with larger flowers. Leaves lanceolate or oblong-linear, mostly $\frac{1}{2}$ to 1 in. long, sessile and dilated at the base, and more or less cordate-auriculate. Flowers in little axillary cymes, shorter than the floral leaves, the peduncles, branches, and pedicels all short. Calyx at first narrow at the base, with the upper part broader and folded, with 4 short teeth, above 1 line diameter when fully out, with the border truncate, the teeth scarcely prominent. Petals 4, orbicular. Stamens usually, but perhaps not always, 6 to 8. Ovary 2-celled; style rather longer than in the preceding species. Capsule depressed-globular, scarcely exceeding the calyx, about $1\frac{1}{2}$ lines diameter, bursting irregularly and transversely.

Queensland. Point Look-out, *Banks and Solander*; Wide Bay, *Bidwill*.—Abundant in tropical and subtropical Africa, perhaps rather less so in Asia, where it is commonly replaced by the following species or variety.

8. ***A. multiflora*, Roxb. Fl. Ind. i. 426.** Erect and branched, but usually smaller than *A. indica* or *A. auriculata*, and often only 3 to 4 in. high. Leaves linear or lanceolate, often above $\frac{1}{2}$ in. long, and narrowed below the middle, but always more or less dilated and cordate-auriculate at the base, as in *A. auriculata*. Flowers minute, in little axillary dichotomous cymes shorter than the floral leaves, the peduncles, branches, and pedicels short but filiform. Calyx about $\frac{3}{4}$ line long, at first narrow at the base with the upper part folded, with 4 very short teeth, afterwards truncate, with the teeth scarcely conspicuous. Petals 4, minute. Stamens 4, or fewer. Ovary 2-celled; style rather long. Capsule depressed-globular, under 1 line diameter, scarcely exceeding the calyx, bursting irregularly and transversely.—DC. Prod. iii. 79; W. and Arn. Prod. 305; *A. australasica*, F. Muell. Trans. Phil. Soc. Vict. i. 41.

Queensland. Keppel Bay, *R. Brown*.

N. S. Wales. Darling river, *Victorian Expedition*.

Victoria. Lagoons on the Murray river, *F. Mueller*.

Widely spread over tropical Asia and Africa. I have great doubts whether it be not a small-flowered variety of *A. auriculata*.—*A. microcarpa*, DC. Prod. iii. 78; Decc. Herb. Tim. Deser. 125, from Timor, and perhaps from the N. coast of Australia, appears to be a form of *A. multiflora*, with a narrower capsule.

2. **LYTHRUM**, Linn.

Calyx tubular, 8- to 12-ribbed, with 4 to 6 triangular often very short primary lobes or teeth, the sinus produced into as many external accessory ones, either short and spreading, or erect and longer than the primary ones. Petals 4 to 6. Stamens twice as many as petals or fewer, inserted below the middle of the calyx. Ovary 2-celled (or very rarely 3-celled?), with several ovules in each cell; style filiform, with a minute or capitate stigma. Capsule included in the persistent calyx, oblong or globular, opening in septical valves at the top or bursting irregularly. Seeds numerous, small.—Herbs or rarely undershrubs, glabrous or villous. Leaves opposite verticillate or the upper ones alternate, usually narrow. Flowers solitary, or 3 to 5 together in the axils, sessile or pedunculate, but not forming a head as in most *Nesceas*.

The genus is spread over most parts of the globe. Of the three Australian species one is endemic, the other two have a geographical range nearly as wide as that of the genus.

Calyx outer-lobes erect, longer than the inner ones. Capsule oblong, hard, septically dehiscent.

Tall perennial. Leaves opposite or verticillate. Flowers nearly sessile, several in each axil, forming showy terminal spikes more or less leafy

1. *L. Salicaria*.

Decumbent annual. Upper leaves alternate. Flowers small, solitary, sessile or shortly pedicellate

2. *L. hyssopifolium*.

Calyx outer-lobes very small, spreading. Capsule membranous, irregularly dehiscent. Erect annual. Peduncles filiform, 1- to 3-flowered

3. *L. arnhemicum*.

1. ***L. Salicaria*, Linn.; DC. Prod. iii. 82.** Rootstock perennial, with stout

annual erect stems, 2 to 3 ft. high, slightly branched, glabrous or pubescent. Leaves opposite or sometimes in threes, sessile and stem-clasping, lanceolate, entire, 2 to 3 in. long. Flowers reddish-purple or pink, 3 to 5 together, nearly sessile in the axils, forming handsome terminal spikes, more or less leafy at the base, the upper floral leaves reduced to bracts scarcely longer or even shorter than the flowers. Calyx about 3 lines long, with 6 (rarely 5) short triangular primary lobes or teeth, the sinuses produced into as many subulate erect outer lobes much longer than the primary ones. Stamens usually 12, 6 longer than the calyx and 6 shorter. Capsule oblong, rather hard, enclosed in the calyx, splitting septically into 2 carpels opening in their inner face.—Hook. f. Fl. Tasm. i. 126.

Queensland. Along watercourses, Brisbane river, Moreton Bay, Fitzalan, Leichhardt.

N. S. Wales. Port Jackson to the Blue Mountains, *R. Brown* and others; northward to Clarence river, *Beckler*; and inland to Lachlan and Macquarrie rivers, etc., *A. Cunningham* and others.

Victoria. Banks of streams, Yarra, etc., *F. Mueller*; in the Grampians, *Wilhelmi*.

Tasmania. Common in wet places, *J. D. Hooker*.

S. Australia. From the Murray to St. Vincent's Gulf, *F. Mueller* and others.

The species is common in northern and subtropical Asia, in Europe, and N. America. For curious details on the fertilization of three different sexual forms, see Darwin in Journ. Linn. Soc. viii. 169.

2. ***L. hyssopifolium***, *Linn.*; *DC. Prod.* iii. 81. A glabrous annual, rarely more than 6 or 8 in. high, the stems slightly branched and decumbent at the base, or, in starved specimens, erect and simple. Leaves sessile, narrow, entire, scarcely $\frac{1}{2}$ in. long, the lower ones opposite, the upper ones alternate. Flowers small, solitary in the upper axils, sessile or nearly so. Calyx 1 to 2 lines long, very slender, the inner primary lobes or teeth very minute and membranous, the outer ones longer, erect, lanceolate-triangular and green. Petals 4 to 6, from rather shorter than the calyx-tube to rather longer. Stamens about as many as petals. Capsule included in the calyx, rather hard, opening septically at the top.—Hook. f. Fl. Tasm. i. 126; *L. thymifolium*, *Linn.*; *DC. Prod.* iii. 81.

Queensland. On the Burdekin, *F. Mueller*.

N. S. Wales. Port Jackson, *Herb. Hooker*, and others; swamps on the Lachlan and other parts of the interior, *A. Cunningham*, *Victorian Expedition*, etc.

Victoria. In swamps and wet places, *F. Mueller*.

Tasmania. Port Dalrymple, *R. Brown*; northern parts of the island, *J. D. Hooker*.

S. Australia. St. Vincent's Gulf, etc., *F. Mueller* and others.

The species is found in most parts of the world, especially in maritime districts.

3. ***L. arnhemicum***, *F. Muell. Fragm.* iii. 109. An erect glabrous annual of $\frac{1}{2}$ to 1 ft. Leaves opposite, linear, narrowed at the base, often exceeding 1 in. Peduncles axillary, slender, 2 to 6 lines long, either 1-flowered with a pair of bracts above the middle, or bearing 3 shortly pedicellate flowers with small bracts at the base of the pedicels, and a pair of bracteoles on each of the lateral ones. Calyx at first ovate-campanulate, but soon broad, 2 lines long, with 12 prominent herbaceous ribs, membranous between them; lobes 6, erect, triangular, about $\frac{1}{4}$ as long as the tube, each tipped with a dark spot, the folds of the sinuses forming as many horizontal accessory teeth. Petals 6, purple, much longer than the calyx, but very fugacious. Stamens

12 or fewer, longer than the calyx. Ovary 2- or rarely 3-celled, but the dissepiments very soon disappearing; style slender, with a small stigma. Capsule globular, about the length of the calyx, membranous and bursting irregularly.

N. Australia. Moist sandy plains and banks of Victoria river and Sturt's Creek, *F. Mueller*.—The species is remarkable for the inflorescence, more lax than in any other *Lythrum*. The short calyx shows an approach to *Nesaea*, but the ovary is usually 2-celled only, and the inflorescence is not capitate. The nearest approach among *Lythrums*, both in inflorescence and capsule, is shown in the S. African *L. rigidulum*, *Sond*.

3. PEMPHIS, Forst.

(*Maclellandia*, *Wight*.)

Calyx campanulate, slightly striate, with 6 short erect triangular primary lobes or teeth, the sinuses produced into as many small accessory spreading ones. Petals 6, oval. Stamens 12, shorter than the calyx, and attached rather above the middle of the tube. Ovary small, 3-celled at the base only, with several ovules in each cell; style rather thick, with a broad capitate stigma. Capsule globular, enclosed in the calyx, transversely circumsciss. Seeds angular or compressed, the testa thick with the angles often expanded into narrow thick wings.—Shrub. Leaves opposite. Flowers solitary in the axils.

The genus is limited to a single species.

1. ***P. acidula*, Forst ; DC. Prod. iii. 89.** A small and bushy, or tall and spreading shrub or small tree, more or less hoary with a minute tomentum. Leaves oblong, obtuse, narrowed into a short petiole, rather thick, 1-nerved, about $\frac{1}{2}$ in. long. Flowers in the upper axils, on pedicels shorter or rarely rather longer than the leaves. Bracteoles none. Calyx about 2 lines long, the accessory lobes much shorter than the primary ones. Petals 3 to 4 lines long. Fruiting-calyx not much enlarged.—Blume, *Mus. Bot. ii. t. 43*; *Maclellandia Griffithiana*, *Wight, Ic. t. 1996*.

N. Australia. North coast, *A. Cunningham*; Port Essington, *Leichhardt*.

Queensland. Tropical seacoasts and adjoining islands, *R. Brown*, *A. Cunningham*, *F. Mueller*, *M'Gillivray*, *Leichhardt*, *W. Hill*.

The species is widely spread over the seacoasts of tropical Asia and the Pacific Islands.

4. LAWSONIA, Linn.

Calyx-tube broadly turbinate; lobes 4, ovate-triangular, the sinuses acute without accessory lobes. Petals 4, broad, sessile. Stamens 8, inserted round an annular disk at the top of the calyx-tube, almost in the same row as the petals, and alternating with them in pairs; filaments rather thick. Ovary filling the calyx-tube, flat-topped or depressed in the centre, 4-celled with very thin dissepiments and many ovules in each cell; style filiform, with a small capitate stigma. Capsule nearly globular, surrounded at the base by the persistent calyx, bursting irregularly. Seeds numerous, cuneate, angular; testa thick.—Shrub. Leaves opposite. Flowers in loose racemes forming leafy panicles.

The genus is limited to a single species.



1. **L. alba**, Lam.; DC. Prod. iii. 91. A glabrous, much-branched shrub of several feet, with divaricate branches, the smaller ones often spinescent. Leaves from obovate and obtuse to ovate or lanceolate and acute, narrowed into a short petiole, rarely above 1 in. long, thin and penniveined. Flowers white, numerous, in little loose racemes forming usually a large terminal pyramidal leafy panicle, the ultimate branches usually leafless, and the bracts very minute or none. Pedicels 1 to 2 lines long. Buds globular. Calyx-tube not 1 line diameter, the lobes spreading to a diameter of 3 lines. Petals not twice as long as the calyx-lobes. Capsule about 3 lines diameter.—Wight, Illustr. i. t. 87.

N. Australia. Melville Island, Fraser.—Dispersed over tropical and subtropical Africa and Asia, but frequently cultivated under the name of *Henné*, for a yellow dye used especially in Africa for dyeing the nails of ladies' fingers. It appears to be abundant in Timor.

5. SONNERATIA, Linn. f.

Calyx thick, the tube broadly campanulate, adnate to the ovary at the base; lobes 4 to 8, lanceolate or triangular, the sinuses acute without accessory lobes or teeth. Petals 4 to 8, narrow, or none. Stamens numerous, inserted at the top of the calyx-tube, inflexed in the bud. Ovary enclosed in and partially adnate to the calyx-tube, depressed-globular, 10- to 15-celled; style elongated with a small capitate stigma. Fruit large, depressed, fleshy, and indehiscent, surrounded by the persistent calyx, and adnate to it at the base. Seeds immersed in pulp, angular, with a thick testa. Embryo curved.—Glabrous trees or shrubs. Leaves opposite, petiolate, rather thick. Flowers large, solitary or 3 together in the upper axils or at the ends of the branches.

Besides the Australian species which is spread over E. India and the Archipelago and extends to eastern Africa, the genus contains one or two others from the same region.

1. **S. acida**, Linn. f.; DC. Prod. iii. 231. A tree. Leaves petiolate, broadly obovate or ovate, 2 to 3 in. long. Calyx broad, about 1 in. long, divided to below the middle into about 6 thick valvate lobes. Petals linear, scarcely exceeding the calyx. Fruit (in Indian specimens) above $1\frac{1}{2}$ in. diameter.—Wight, Ic. t. 340.

N. Australia. Frequent in bogs on the N. and N.W. coasts, A. Cunningham. The specimens are imperfect, in leaf with a single flower, but as far as they go they are exactly like some of our Malayan ones.

Some specimens in Herb. R. Brown from Arnhem N. Bay have no petals in the expanded flowers, yet they look more like *S. acida* than *S. apetala*, and the petals may have fallen away.

ORDER LI. ONAGRARIÆ.

Calyx-tube adnate to the ovary, entirely so or produced above it; lobes 2 to 4, rarely 5 or 6, valvate in the bud. Petals as many as calyx-lobes, inserted at the top of the calyx-tube, rarely wanting. Stamens as many or twice as many as petals, or fewer, inserted at the top of the calyx-tube, free (except in a Mexican genus); anthers from ovate to linear, versatile, with parallel cells opening longitudinally. Ovary inferior, more or less completely divided into as many cells as calyx-lobes, or rarely 1-celled; style filiform, or

sometimes very short or scarcely any; stigma entire or divided into as many lobes as cells to the ovary. Ovules usually numerous, in 1 or 2 rows in each cell, anatropous, rarely, in genera not Australian, solitary. Fruit various, in the Australian genera capsular and elongated, opening from the apex downwards in as many valves as cells, or splitting laterally between the ribs of the calyx. Seeds usually small; testa membranous, coriaceous or rarely spongy. Albumen none or exceedingly thin. Embryo usually ovoid; cotyledons plano-convex (except in *Trapa*), with a very short radicle.—Herbs, annual or perennial, or, in a few genera not Australian, shrubs or even trees. Leaves opposite or alternate, without stipules, entire serrate or very rarely divided. Flowers usually solitary in the axils, sometimes forming leafy racemes or spikes at the ends of the branches, often with 2 small bracteoles under the calyx.

The Order is dispersed over nearly the whole surface of the globe. Of the 4 Australian genera, one, *Epilobium*, has nearly as extensive a range as the whole Order; two, *Jussiaea* and *Ludwigia*, belong chiefly to the warmer regions, *Ludwigia* extending into temperate climates; the fourth, *Oenothera*, is almost entirely American.

- Calyx-tube produced above the ovary. Capsule opening from the summit downwards. Seeds naked. Stamens twice as many as calyx-lobes or petals 1. *OENOTHERA*.
 Calyx-tube not produced above the ovary.
 Capsule opening from the summit downwards in 4 valves. Seeds with a tuft of hairs. Stamens 8. Petals 4 2. *EPILOBIUM*.
 Capsule opening laterally between the ribs of the calyx or at the summit inside the calyx. Seeds naked.
 Stamens twice as many as calyx-lobes or petals 3. *JUSSIEA*.
 Stamens of the same number as calyx-lobes or petals 4. *LUDWIGIA*.

1. *OENOTHERA*, Linn.

Calyx-tube more or less produced above the ovary and dilated at the end into a 4-lobed limb, the whole free part deciduous. Petals 4. Stamens 8, inserted at the summit of the calyx-tube; anthers linear. Ovary 4-celled, with many ovules in each cell; style filiform with a capitate clavate or 4-lobed stigma. Capsule usually opening from the summit downwards loculicidally in 4 valves separating from the persistent axis. Seeds without any tuft of hairs.—Herbs or rarely small shrubs. Leaves alternate, or rarely the lower ones opposite, entire or variously toothed or lobed. Flowers axillary, solitary or very rarely in pairs, sometimes forming terminal racemes or spikes, rarely contracted into heads.

A large American genus, chiefly extratropical or Andine, a very few species now naturalized in various parts of the Old World. Of the two Australian species, one is a naturalized one of American origin, the others apparently endemic, but very closely allied to a Chilean species.

- Tall erect plant, with large yellow flowers in a terminal spike. Stigma 4-lobed 1. *O. biennis*.
 Small prostrate plant. Flowers small in the axils of the stem leaves. Stigma undivided 2. *O. tasmanica*.

* 1. *O. biennis*, Linn.; DC. Prod. iii. 46. A biennial, 2 or 3 ft. high, the stems almost simple and more or less hairy. Leaves ovate-lanceolate or lanceolate, slightly toothed, hoary or downy. Flowers large, yellow, fragrant,



sessile in a long terminal spike often leafy at the base. Ovary and adnate part of the calyx about 6 to 8 lines long, the free part of the calyx-tube at least 1 in. long. Petals broad and spreading. Stigma divided into 4 linear lobes. Capsules $\frac{3}{4}$ to 1 in. long, scarcely angular.

A plant of N. American origin, long cultivated in gardens in Europe and other countries, and readily establishing itself in waste places on river banks, etc., and now said to be naturalized in many parts of **N. S. Wales, Victoria, and S. Australia.**

2. ***Æ. tasmanica***, Hook. f. *Fl. Tasm.* i. 119. A small plant, with slender prostrate or creeping stems of a few inches, glabrous or slightly pubescent. Lower leaves opposite, the others alternate, sessile or nearly so, oblong, obtuse, rarely exceeding $\frac{1}{2}$ in., glabrous, with crisped more or less toothed margins. Flowers small, yellow, sessile or nearly so, solitary in the axils of the leaves. Calyx-tube at the time of flowering not exceeding the leaves, very shortly produced above the ovary; lobes 1 line long or rather more. Petals shortly exceeding the calyx-lobes. Anthers oblong. Stigma entire, clavate, almost capitate. Capsule terete or slightly 4-gonous, $\frac{1}{2}$ in. long or rather more, often curved.

Tasmania. Alpine marshes at Marlborough, *Gunn.*

The specimens have not very good flowers. They very nearly resemble the broad-leaved varieties of *Æ. dentata*, Cav., distinguished by Spach as *Holostigma heterophyllum*. This species ranges from S. Chile to California, and differs from the Tasmanian one chiefly in the rather longer more angular capsule. Further specimens may possibly show the two to be forms only of one species.

2. ***EPILOBIUM***, Linn.

Calyx-tube not at all or scarcely produced above the ovary; lobes 4, deciduous. Petals 4. Stamens 8; anthers linear or oblong. Ovary inferior, 4-celled, with numerous ovules in each cell; style filiform; stigma entire and club-shaped in the Australian species, 4-lobed in some others. Capsule elongated, opening loculicidally in 4 valves from the summit downwards. Seeds small, with a tuft of long hairs at the end.—Herbs, mostly erect, or with a decumbent or creeping base. Leaves opposite or irregularly scattered. Flowers pink or red, rarely white, solitary in the upper axils or forming a terminal raceme.

The genus is diffused over nearly the whole globe, from the extreme Arctic regions of both hemispheres to the tropics. The numerous forms the species assume in every variety of climate make it exceedingly difficult to define them upon any certain principle, and botanists seldom agree as to the number they should admit. The general tendency of late has been to an inordinate multiplication of supposed species. F. Mueller, on the other hand (*Veget. Chath. Isl.* 15), proposes to reduce the whole of the New Zealand and Australian species to the Linnæan *E. tetragonum*, a course which will hardly be concurred in by the majority of botanists. Of the following forms, *E. confertifolium* and *E. pallidiflorum*, at least, appear to me to be quite distinct, whatever may be said of the others. The very imperfect state of the majority of the Australian specimens, except those from Tasmania and W. Australia, increases the difficulty of judging of the relative value of the characters observed. The autumnal offshoots, often very useful in distinguishing European species, are not described in any of the Australian ones, and do not appear on the specimens.

Stems short, densely leafy, creeping or shortly ascending at the

tips. Flowers small 1. *E. confertifolium*.

Stems erect, or decumbent at the base only.

Flowers small. Calyx-lobes under 3 lines long and petals not twice as long.

Stems terete.

- | | |
|--|--------------------------------|
| Pubescent or hoary. Leaves mostly alternate and narrow | 2. <i>E. junceum</i> . |
| Glabrous or slightly hoary in the upper portion. Leaves mostly opposite and oblong | 3. <i>E. glabellum</i> . |
| Stems more or less tetragonous, with raised lines decurrent from the leaves | 4. <i>E. tetragonum</i> . |
| Flowers large. Calyx-lobes 3 lines long or more. Petals twice as long. | |
| Leaves mostly oblong, obtuse and under 1 in. | 5. <i>E. Billardierianum</i> . |
| Leaves lanceolate or linear, acute, 1 to 2 in. long. | 6. <i>E. pallidiflorum</i> . |

1. ***E. confertifolium***, Hook. f. *Fl. Antarct.* i. 10, and *Handb. N. Zeal.* Fl. 78. Small, almost glabrous, prostrate and creeping, the branches rather stout, 1 to 4 in. long, shortly ascending at the tips. Leaves crowded, all opposite, from ovate-oblong to linear-oblong, obtuse, under $\frac{1}{2}$ in. long, rather thick and shining, obscurely toothed. Flowers small, in the upper axils, on pedicels at first shorter than the leaves, but often much longer when in fruit. Calyx-lobes under 2 lines long, and petals only a little longer. Capsule about $\frac{1}{2}$ in. long.—Hook. Ic. Pl. t. 685; *E. tenuipes*, Hook. f. *Fl. Tasm.* i. 116.

Victoria. Bogong range, at an elevation of 6000 to 7000 ft., *F. Mueller*.

Tasmania. Summit of Table mountain, Derwent river, *R. Brown*; abundant on the summit of Mount Olympus and Isis river, Middlesex plains, *Gunn*.

The species is also in New Zealand.

2. ***E. junceum***, Forst. in *Spreng. Syst.* ii. 233. Stems from a hard decumbent base, erect, terete, hoary-tomentose or softly pubescent, usually 1 to 2 ft. high and rigid, but smaller and slender when starved. Lowest leaves opposite, the upper ones and often nearly all alternate, sessile, linear-oblong, remotely sinuate-toothed, the larger ones often 2 in. long or more, but mostly smaller and the upper floral ones often very much reduced, all hoary or pubescent. Flowers in the upper axils sometimes quite small, but the calyx-lobes usually 2 to nearly 3 lines long, the petals rather longer, the pedicels at first shorter than the floral leaves, but lengthening much after flowering. Capsule slender, usually about 2 in. long.—Hook. f. *Fl. Tasm.* i. 118, and *Handb. N. Zeal.* Fl. 80; *E. canescens*, Endl. in *Hueg. Enum.* 44; Nees in *Pl. Preiss.* i. 159.

Queensland. Plains of the Condamine, *Leichhardt*.

N. S. Wales. Port Jackson to the Blue Mountains, *R. Brown*; Hastings, Clarence, and Macleay rivers, *Beckler*; in the interior to the N. of Bathurst, *A. Cunningham*; New England, *Leichhardt*.

Victoria. Common in the colony, *F. Mueller*, *Robertson*, and others.

Tasmania. Port Dalrymple, *R. Brown*; abundant throughout the colony by waysides, in pastures, etc., *J. D. Hooker*.

S. Australia. In grassy plains, *F. Mueller*, and others.

W. Australia. From King George's Sound to Swan and Moore rivers, etc., *Huegel*, *Drummond*, n. 253, *Preiss*, n. 1946, 1947, 1948, and others.

The species is also in New Zealand. It appears to be the common *Epilobium* of extra-tropical Australia, in situations occupied by *E. montanum* in the northern hemisphere, and generally speaking it is readily distinguished from any of the following, although here and there doubtful specimens are met with.

3. **E. glabellum**, *Forst. in Spreng. Syst.* ii. 233. Nearly allied to *E. junceum*, but usually glabrous or the stem very slightly hoary-pubescent in the upper portion. Leaves all or nearly all except the upper floral ones opposite, sessile or nearly so, from oval-oblong to narrow-oblong, obtuse, always broader and the teeth less prominent than in *E. junceum*. Flowers small, as in that species.—Hook. f. *Fl. Tasm.* i. 118, and *Handb. N. Zeal.* Fl. 79.

Victoria. "Australia Felix," *F. Mueller*.

Tasmania. Abundant in many parts of the island, *J. D. Hooker*.

S. Australia. Glenelg river and Bugle Range, *F. Mueller*.

W. Australia. King George's Sound, *R. Brown, Drummond, 2nd Coll. n. 239*; Tweed river, *Oldfield*.

The species is much more common in New Zealand than in Australia, and, although generally distinct, seems sometimes almost to pass into *E. junceum*, on the one hand, and rather more into *E. Billardierianum* on the other.

4. **E. tetragonum**, *Linn. Spec. Pl.* 495. Stems erect, 1 to 2 ft. high, glabrous or slightly hoary-pubescent, and more or less angular, especially in the lower portion, with raised lines decurrent from the leaves. Leaves sessile or nearly so, from ovate-lanceolate to narrow-oblong, the lower ones opposite, usually larger, thinner, with more prominent veins than in *E. glabellum*. Flowers small, the calyx-lobes rarely above 2 lines long and the petals not much longer. Capsule often very long.—Ser. in *DC. Prod.* iii. 43; Hook. f. *Fl. Tasm.* i. 117.

N. S. Wales. Macleay river, *Beckler*.

Victoria. Banks of streams near Goulburn river, *F. Mueller*.

Tasmania. Common in moist, especially alpine situations, *J. D. Hooker*.

S. Australia. Gawler river, *F. Mueller*.

In the majority of the Australian specimens, the raised decurrent lines on the stems are less prominent than in the European and Asiatic ones, and I have some doubts whether they may not be luxuriant forms of *E. glabellum*, and whether the true *E. tetragonum* is really Australian, except here and there where introduced from Europe.

5. **E. Billardierianum**, *Ser. in DC. Prod.* iii. 41. Glabrous or minutely hoary-pubescent, especially in the upper portion. Stems usually nearly simple, $\frac{1}{2}$ to $1\frac{1}{2}$ ft. high, terete or rarely with short faint decurrent lines from some of the leaves. Leaves sessile or nearly so, mostly opposite, except the floral ones, from narrow ovate-oblong to linear-oblong, obtuse, more or less toothed, rarely exceeding 1 in. Pedicels shorter than the leaves or the upper ones exceeding them when in fruit. Calyx-lobes about 3 lines long or rather more, the petals usually twice as long. Capsule elongated.—Hook. f. *Fl. Tasm.* i. 117. t. 21, and *Handb. N. Zeal.* Fl. 81.

N. S. Wales. Head of the Gwydir, *Leichhardt*; Ben Lomond and Arne river, *Beckler*.

Tasmania. Common in alpine situations, *J. D. Hooker*.

The foliage is nearly that of *E. glabellum*, which by some is included in *E. Billardierianum*, but the leaves are more crowded and the flowers nearly as large as in *E. pallidiflorum*.

6. **E. pallidiflorum**, *Soland.; A. Cunn. in Ann. Nat. Hist.* iii. 34. A handsome plant, readily distinguished by its long acute leaves and large flowers. Stems, from a decumbent base, erect, terete, 2 to 3 ft. high, glabrous or hoary-pubescent in the upper portion. Leaves opposite, except the upper

floral ones, sessile or on very short broad petioles, linear or lanceolate, acute, with a few distant teeth, mostly 1 to 2 in. long. Pedicels usually short, even when in fruit. Calyx-lobes 3 lines long or more; petals twice as long. Capsule long, usually hoary-tomentose.—Hook. f. Fl. Tasm. i. 117; Handb. Fl. N. Zeal. 81; *E. macranthum*, Hook. f. in Hook. Ic. Pl. t. 297.

Victoria. Grampians, *Herb. P. Mueller*.

Tasmania. Common in ditches and marshes, especially in the northern parts of the colony, *J. D. Hooker*.

S. Australia. Meadows near Holdfast Bay, Mount Disappointment, Cox's Creek, *F. Mueller*.

3. JUSSIÆA, Linn.

Calyx-tube not produced above the ovary; lobes 4, 5 or rarely 6, persistent. Petals as many as calyx-lobes. Stamens twice as many as calyx-lobes. Ovary with as many cells as calyx-lobes and numerous ovules in each cell; style short or long or scarcely any; stigma more or less lobed. Capsule terete or with as many or twice as many ribs or angles as calyx-lobes, opening septically in valves separating from the persistent ribs or irregularly between the ribs. Seeds usually numerous; testa thin or crustaceous, or thick and spongy.—Herbs, sometimes aquatic, or rarely shrubs. Leaves alternate, entire or very rarely serrate. Flowers yellow or white, solitary in the axils; petals usually broad.

The genus is chiefly American, both tropical and extratropical, a few species also spread over tropical and subtropical Africa and Asia. The Australian species are both of them common in the New as well as the Old World.

Creeping or floating plant. Flowers usually 5-merous, on pedicels

longer than the ovary 1. *J. repens*.

Erect plant. Flowers mostly 4-merous, on very short pedicels or

almost sessile 2. *J. suffruticosa*.

1. **J. repens**, *Linn. Spec. Pl.* 555, and *Mant.* 381. Herbaceous, creeping in mud or floating in water, often sustaining itself by little vesicles round the insertion of the leaves, glabrous or more or less hirsute, with soft spreading hairs. Leaves from obovate or obovate-oblong, to narrow cuneate-oblong or almost lanceolate, acute or rarely obtuse, the upper ones usually 1 to 2 in. long, those about the short creeping branches often very small. Peduncles usually longer than the ovary and fruit, with 2 small bracteoles at the summit. Calyx-tube or ovary cylindrical, rather slender, under $\frac{1}{2}$ in. long when in flower; lobes usually 5, lanceolate, acute, 3 to 4 lines long. Petals broadly obovate, from a little longer to twice as long as the calyx-lobes. Capsule lengthening to about $\frac{1}{2}$ in., and about $1\frac{1}{2}$ lines thick, smooth and shining but usually sprinkled with a few hairs, the 5 primary ribs prominent, the secondary ones less so.—DC. *Prod.* iii. 54; Wight in Hook. *Bot. Misc.* iii. 300. t. Suppl. 40; *J. Swartziana*, DC. l. c.

Queensland. Port Curtis, *McGillivray*; common in lagoons about Moreton Bay, *C. Stuart*.

N. S. Wales. Richmond and Hunter's rivers, *R. Brown*; Paramatta, *Woolfs*; Illawarra, *A. Cunningham*; inland on the Darling, *Victorian Expedition*, to Cooper's Creek, *Howitt's Expedition*.

Victoria. Morasses of Snowy River and bends of Murrumbidgee river, *F. Mueller*.

S. Australia. Murray river, *F. Mueller*.



2. **J. suffruticosa**, Linn. *Spec. Pl.* 555. An erect branching perennial, attaining 2 or 3 ft., the base of the stem often hard and woody, either softly pubescent or villous in all its parts or rarely almost glabrous, the stem often angular. Leaves lanceolate or almost linear, acute, narrowed at the base, the larger ones 2 to 4 in. long. Pedicels much shorter than the calyx-tube or ovary, the bracteoles reduced to small glands or wanting. Calyx-tube or ovary usually about $\frac{1}{2}$ in. long when in flower, but soon lengthening out; lobes 4 or rarely 5, lanceolate, broad or narrow, 3- to 5-nerved, 4 to 5 lines long. Petals broad, exceeding the calyx-lobes. Capsule $1\frac{1}{2}$ to 2 in. long, usually above 2 lines broad, tapering to the base, nearly terete, the ribs scarcely prominent.—F. Muell. *Fragm.* iii. 130; *J. villosa* and *J. angustifolia*, Lam. *Dict.* iii. 331; DC. *Prod.* iii. 55, 57; *J. villosa*, W. and Arn. *Prod.* 336, with the synonyms adduced; *J. suffruticosa* and *J. angustifolia*, Griseb. *Fl. Brit. W. Ind.* 273, with the numerous synonyms adduced.

N. Australia. Victoria river and Macadam Range, *F. Mueller*; Strangways river, *M'Donnell Stuart*; Albert river, *Henne*.

Queensland. Broad Sound and Northumberland islands, *R. Brown*; Lizard Island, *M'Gillivray*; Burnett river, *F. Mueller*; Burdekin river, *Bowman*; Rockhampton, *Dal-lachy*; Brisbane river, Moreton Bay, *A. Cunningham*, *F. Mueller*.

N. S. Wales. Clarence river, *Beckler*; New England, *C. Stuart*.

The species is common in most tropical countries. The nearly glabrous forms distinguished sometimes as *J. angustifolia*, seem frequently to pass into the villous ones in most localities. In Australia, the two appear to be equally abundant in Queensland, the villous ones more common in N. Australia, and the more glabrous ones in N. S. Wales.

4. LUDWIGIA, Linn.

Calyx-tube not produced above the ovary; lobes 4, 5 or rarely 3, persistent or at length deciduous. Petals as many as calyx-lobes or sometimes none. Stamens as many as calyx-lobes. Ovary with as many cells as calyx-lobes, and numerous ovules in each cell; stigma sessile or nearly so, capitate, furrowed or obscurely lobed. Capsule angular or terete, much longer than broad, opening either in terminal pores or irregularly along the sides between the ribs. Seeds small, numerous, without any tuft of hairs.—Annual or perennial herbs, sometimes somewhat woody at the base. Leaves alternate or the lower ones (in species not Australian) opposite. Flowers axillary, sessile or nearly so, or rarely distinctly pedicellate. Petals usually very small.

The genus is dispersed over the warmer and temperate regions of the globe; the only Australian species is a common Asiatic and African one.

1. **L. parviflora**, Roxb. *Fl. Ind.* i. 419. An erect or diffuse glabrous annual, rarely above 1 ft. high. Leaves alternate, lanceolate, or, in most of the Australian specimens, linear, entire, 1 to 2 or even 3 in. long, narrowed into a short petiole. Flowers very small, solitary in the axils, sessile or very shortly pedicellate. Calyx-tube (or ovary) at the time of flowering, rarely $1\frac{1}{2}$ lines long, but very rapidly enlarging; lobes usually 4 in the Indian specimens, more frequently 5 in the Australian ones, small and very acute. Petals not exceeding the calyx-lobes. Stamens rather shorter. Stigma large, capitate. Capsule 4 to 6 lines long and $1\frac{1}{2}$ lines broad when attaining its full size, but often ripening much smaller.—Wight, *Illustr.* t. 101.

N. Australia. Victoria river, *F. Mueller*; Port Essington, *Armstrong*.

Queensland. Endeavour river, *A. Cunningham*; Burdekin river, *Boorman*.

The species is widely spread over tropical Asia and Africa. Amongst the synonyms quoted by Wight and Arnott, Prod. 336, are *L. diffusa*, Hamilt. in Trans. Linn. Soc. xiv. 301, and *L. perennis*, Linn. Spec. Pl. 173. These are copied by Miquel into his Fl. Ind. Bat. i. part i. 629, and observing that one of them is an old name of Linnaeus's, he, without further inquiry (except perhaps a glance at Rheede's fig. of *Caramba*, Hort. Malab. ii. t. 49, cited by Linnaeus, which is the true *L. parviflora*), adopts this name of *L. perennis* for the species, and Miquel's example is followed by F. Mueller, Fragm. iii. 129. But not only is Linnaeus's name wholly inapplicable to a plant so constantly and evidently annual, but so is also his specific character "foliis oppositis floribus pedicellatis," and as to the reference to Rheede's *Caramba*, he expressly rejects it in his Mantissa, p. 332, as pointed out in DC. Prod. iii. 59. Although therefore Linnaeus may have confounded this plant with some other, it is certainly not the one he had in view in characterizing his *L. perennis*, and Arnott and others are fully justified in adopting Roxburgh's *L. parviflora*. As to *L. diffusa*, Hamilt., although he also thought Rheede's *Caramba* might be the same, it is in fact quite distinct in the long slender ovary and capsule, and in some measure in inflorescence. It is *L. prostrata*, Roxb. Fl. Ind. i. 420; Wight, Ic. t. 762, and includes the three species of *Nematopyxis*, described by Miquel, Fl. Ind. Bat. i. part i. 630. It has not yet been found in Australia.

ORDER LII. SAMYDACEÆ.

Sepals free or united at the base into a 4- or 5-lobed (rarely 2-, 3- or 6- or more-lobed) calyx, free from the ovary or more or less adherent. Petals either as many as the sepals or calyx-lobes, inserted at their base, persistent with them, and resembling them in consistence, or wanting. Stamens perigynous, indefinite or not corresponding in number with the calyx-lobes, or, if equal to them, usually opposite the petals and alternating with small glands or scales. Ovary superior or more or less inferior, with 2, 3 or more parietal placentas and several ovules to each placenta; style entire or more or less divided into as many branches as placentas. Fruit indehiscent or opening in valves between the placentas. Seeds often arillate, with a fleshy albumen. Embryo straight or nearly so, with the radicle next the hilum and flat cotyledons.—Trees or shrubs. Leaves alternate, undivided, usually toothed. Stipules small or none. Flowers hermaphrodite or rarely diœcious.

A considerable Order, if taken with the limits above given, and widely distributed over the New and the Old World, chiefly within the tropics. The two following genera belong to two of those tribes into which it may be divided, and which are considered by some as distinct Orders, viz. *Caseariæ* or *Samydææ* proper, without petals, the stamens in a single series; and *Homalinxæ*, with sepal-like petals, the stamens inserted singly or in clusters opposite the petals.

Petals none. Stamens in a single row, alternating with short ciliate scales. Ovary superior

1. CASEARIA.

Petals as many as sepals. Stamens opposite them, singly or in clusters.

Ovary inferior

2. HOMALIUM.

1. CASEARIA, Linn.

Calyx-lobes 4 or 5. Petals none. Stamens 6 to 15 or rarely more, alternating with as many short ciliate or hairy scales (staminodia?), all in a single series and united in a perigynous ring at the base. Ovary superior, 1-celled, with 3 or rarely 4 parietal placentas; style entire or shortly 3-lobed. Fruit somewhat succulent, opening in valves or more fleshy and indehiscent. Seeds often with an arillus.—Trees or shrubs. Leaves usually, but not always

dotted with a mixture of round and oblong transparent dots. Stipules lateral. Flowers usually small, in axillary clusters.

A considerable genus, chiefly American, with a few African and Asiatic species. The only Australian species appears to be a common Indian one.

Leaves not dotted. Stamens 8 1. *C. esculenta*.
Leaves pellucid-dotted. Stamens 10 to 12 2. *C. Dallachii*.

1. ***C. esculenta***, Roxb. *Fl. Ind.* ii. 422. A large shrub, usually quite glabrous, the branches not angular. Leaves from oval-elliptical to nearly oblong, acuminate, narrowed at the base, 2 to 4 in. long or sometimes rather more, scarcely coriaceous, but not dotted. Flowers very small, in axillary clusters, the pedicels about 1 line long. Calyx glabrous, rather above 1 line diameter when open, 5-lobed. Stamens 8, alternating with as many short truncate staminodia, usually scarcely pubescent. Ovary glabrous, tapering into a short style; stigma entire. Placentas 3, the ovules not numerous.

Queensland. Brisbane river, *F. Mueller*.

The species to which this plant seems referable is widely spread over E. India. It may be the same as *C. ovata*, Willd., and *C. zeylanica*, Thw., as doubtfully suggested by Thwaites, Enum. Ceyl. Pl. 19, but both of those appear to have the ovary hirsute.

2. ***C. Dallachii***, *F. Muell. Fragm.* v. 107. Nearly glabrous. Leaves shortly petiolate, ovate, shortly acuminate, 3 to 4 in. long, pellucid-dotted, minutely tomentose near the base or quite glabrous. Flowers densely clustered, hoary-pubescent, the pedicels shorter than the calyx. Calyx-segments 5, orbicular, about 1 line long. Stamens 10 to 12, alternating and more or less united with as many staminodia, which are bearded at the end. Ovary more or less hirsute at the top; style very short and thick, with a large undivided stigma. Placentas 3.

Queensland. Rockingham Bay, *Dallachy*.—Very nearly allied to *C. glabra*, Roxb. (which appears to be a variety only of the common Indian *C. tomentosa*), differing in the rather thicker calyx-lobes, and more numerous stamens.

2. **HOMALIUM**, Jacq.

(*Blackwellia*, *Juss.*)

Calyx-tube turbinate or oblong, adherent to the ovary at the base; lobes 4 to 12. Petals as many as calyx-lobes. Stamens 1 or more opposite each petal, with 1 gland opposite each calyx-lobe. Ovary 1-celled, adherent in the lower part, conical and free in the upper portion, crowned with 3 to 5 styles, either free or united into one; placentas as many as styles, in the upper free part of the ovary, with 2 to 6, usually 4 ovules to each. Fruit slightly enlarged, surrounded by the persistent calyx-lobes and petals, and usually opening at the top in short valves between the placentas.—Trees or shrubs. Leaves not dotted. Flowers in axillary spikes or racemes, or in terminal panicles.

A considerable tropical genus, chiefly Asiatic and African, with a few American species. Of the two Australian species, one is also in the islands of the South Pacific, the other is endemic.

Leaves and flower-spikes above 2 in. long. Calyx-segments usually 8 to 10, with as many petals of about the same size. Stamens 2 or

3 opposite each petal 1. *H. vitiense*.

Leaves and flower-spikes under 2 in. long. Calyx-segments usually 5.

Petals as many but larger. Stamens solitary opposite each petal. 2. *H. brachybotrys*.

1. *H. vitiense*, Benth. in Journ. Linn. Soc. iv. 36. A tree, glabrous except the inflorescence, or rarely a few appressed hairs on the under side of the leaves. Leaves broadly ovate, obtuse or very shortly and obtusely acuminate, irregularly and often obscurely sinuate-crenate or undulate, 2 to 4 in. long, on petioles of from $\frac{1}{4}$ to $\frac{1}{2}$ in. or rarely longer. Flowers very nearly sessile, in simple or branched spikes, varying from 2 or 3 in. long and rather dense, to twice that length and interrupted, the rhachis and flowers more or less pubescent. Calyx-tube narrow-turbinate, $\frac{1}{2}$ to $\frac{3}{4}$ line long; lobes 8 to 10 (or rarely 6 or 7²), linear; petals as many, scarcely more cuneate, giving the whole flower the appearance of a 16- to 20-lobed calyx, the enlarged calyx-lobes and petals after flowering about $1\frac{1}{2}$ lines long and ciliate-hirsute. Stamens in pairs or 3 together opposite each petal.—*H. alnifolium*, F. Muell. Fragm. ii. 127.

Queensland. Rockhampton, Dallachy. Also in New Caledonia and the Fiji islands.

The leaves in the Australian specimens are rather larger and more coriaceous than in those from the Fiji islands, but are precisely as in New Caledonian specimens collected by Deplanche and Vieillard under nos. 23 and 2076, and referred by them to *H. tomentosum*, Benth., from which they differ both in flowers and foliage. *H. vitiense* is much more nearly allied to *H. fetidum*, Benth.

2. *H. brachybotrys*, F. Muell. Fragm. ii. 127. Glabrous or nearly so, except the inflorescence. Leaves oval-elliptical or obovate, obtuse, entire or obscurely sinuate, rarely exceeding 2 in. and mostly about 1 in. long, narrowed into a petiole, drying of a paler colour than most of the genus. Flowers very small, sessile, in simple slender spikes of about 1 in., the rhachis pubescent as well as the flowers. Calyx-tube ovoid, about $\frac{1}{2}$ line long; lobes 5 (or 6²), narrow-linear, rather shorter than the tube. Petals oblong or spatulate, rather longer and much broader than the calyx-lobes. Stamens solitary opposite each petal. Styles and placentas 4 or 5.—*Blackwellia brachybotrya*, F. Muell. in Trans. Vict. Inst. iii. 48.

Queensland. Granite rocks, sources of the Gilbert river, F. Mueller.

ORDER LIII. PASSIFLOREÆ.

Calyx-tube short or rarely elongated; lobes 4 or 5, valvate or more or less imbricate in the bud, often coloured inside. Petals as many as calyx-lobes, inserted at their base and alternating with them, often persistent with them and much resembling them, sometimes small or rarely wanting. Stamens usually as many as calyx-lobes, rarely twice as many, inserted at the base of the calyx, but often connate with the ovary-stalk to near the top and appearing to be there inserted. Ovary usually stalked, 1-celled, with 3 or rarely 5 parietal placentas, each with several ovules. Style divided into as many branches as there are placentas, with terminal stigmas. Fruit indehiscent and succulent or opening in valves between the placentas. Seeds often arilate; albumen fleshy. Embryo straight, with leafy cotyledons, the radicle next the hilum.—Climbers, or rarely, in genera not Australian, erect herbs or shrubs. Leaves alternate, entire or divided, with stipules. Flowers herma-







phrodite or unisexual, solitary or in cymes or racemes, on axillary peduncles. Tendrils axillary, often accompanying or terminating the peduncles.

The Order is dispersed over the tropical and subtropical regions of the New and the Old World. Of the two Australian genera one is American, with the exception of a few Old World species, the other is African and Asiatic.

Flowers usually large, hermaphrodite. One or several rings of coloured filaments or appendages forming a corona within the petals 1. PASSIFLORA.
Flowers small, unisexual. Petals small or none. Corona small or none. 2. MOEDECA.

1. PASSIFLORA, Linn.

(*Disemma*, Labill.; *Muracuja*, Pers.)

Calyx-tube short. Petals rarely wanting and often like the calyx lobes. One or several rings of coloured filaments or appendages forming a corona within the petals. Stamens as many as calyx-lobes, so united with the ovary-stalk as to appear to be inserted at or near its summit. Styles 3, with large capitate stigmas. Fruit succulent or pulpy, indehiscent, or opening obscurely in 3 valves.—Climbers with axillary tendrils. Leaves entire or palmately-lobed or divided. Flowers usually hermaphrodite, the calyx-lobes coloured inside nearly or quite as much as the petals.

The species are numerous in tropical or subtropical America, with a very few from Africa, Asia, and the Pacific islands. The three Australian ones are supposed to be endemic, and one is probably really so, another is perhaps a variety only of a New Caledonian species, and the third is as yet insufficiently known. They all belong to the section *Disemma*, usually considered as a genus, distinguished by the number of rings of the corona—in *Muracuja* 1, in *Disemma* 2, in other *Passifloras* 3 or more; but this distinction proves too artificial to be taken as of more than sectional value, being unaccompanied by any difference in habit or other characters. In all the Australian species the filaments of the inner corona are united in a crenate or shortly lobed ring or tube.

Pubescent. Leaf-lobes rather acute. Inner ring of the corona connivent or contracted at the top 1. *P. Herbertiana*.
Glabrous. Leaf-lobes usually obtuse. Inner ring of the corona erect and plicate, scarcely contracted at the top.
Calyx $1\frac{1}{2}$ to 2 in. long 2. *P. Banksii*.
Calyx under 1 in. long 3. *P. brachystephana*.

1. *P. Herbertiana*, Lindl. Bot. Reg. t. 737. A tall robust climber, more or less pubescent. Leaves broad, truncate or slightly cordate at the base, larger than in *P. Banksii*, often 3 in. long or more, with 3 broad triangular almost acute lobes, pubescent on both sides (sometimes minutely so), the petiole with 2 glands very near the summit. Flowers solitary or in pairs, rather large, on pedicels much shorter than the leaves, with 2 or 3 scattered setaceous bracteoles at or below the middle. Calyx-lobes nearly $1\frac{1}{2}$ in. long, of a greenish-white or pale orange-yellow. Petals narrow, scarcely more than half as long as the calyx-lobes. Inner corona about $\frac{1}{2}$ in. long, broadly tubular but contracted at the orifice, crenate or shortly lobed; outer corona rather shorter, of a single row of filaments. Gynophore rather shorter than the calyx-lobes.—*Disemma Herbertiana*, DC. Prod. iii. 332.

Queensland. Brisbane river, Moreton Bay, Fraser.
N. S. Wales. Port Jackson and Newcastle Lutei, R. Brown; New England, C. Stuart; Illawarra, A. Cunningham.

2. **P. Banksii**, *Benth.* Quite glabrous. Leaves broad, usually under 3 in. long, with 3 broad obtuse lobes rarely divided to the middle of the leaf, and each lobe occasionally sinuate or more or less distinctly 2- or 3-lobed, the petiole with 2 glands very near the summit, very rarely obscure or altogether wanting. Flowers rather large, sometimes pale when they first open but soon assuming a brick-red or dull scarlet colour, on pedicels much shorter than the leaves, with 2 or 3 scattered setaceous bracteoles at or below the middle. Calyx-lobes about $1\frac{1}{2}$ in. long or rather more. Petals narrow, scarcely more than half as long as the calyx-lobes. Inner corona broadly tubular, slightly contracted, plicate and shortly lobed at the orifice; outer corona about the same length, of a single row of filaments. Ovary-stalk longer than the petals, shorter than the calyx-lobes.—*P. coccinea*, Soland. in Herb. Banks, not of Aubl.; *Disemma coccinea*, DC. Prod. iii. 333.

Queensland. Endeavour river, *Banks and Solander*, *A. Cunningham*; Keppel Bay, *R. Brown*; Brisbane river, Moreton Bay, *A. Cunningham* and others. Islands of the coast, *M'Gillivray*, *Henne*.

The species very closely resembles the original *P. aurantia*, Forst., or *Disemma aurantia*, Labill. Sert. Austr. Caled. t. 79, from New Caledonia, as well as *P. adiantifolia*, Lindl. Bot. Reg. t. 233 (*Murceja Baueri*, Lindl. Collect. Bot. t. 36, *Disemma adiantifolia*, DC. Prod. iii. 333), from Norfolk Island, the former differing only in the petiolar glands further from the limb and the bracteoles nearer the flower, and the latter in the absence of petiolar glands. But it seems doubtful whether the petiolar glands are constant in Australia, for in a specimen of Macarthur's, communicated by Backhouse, without the precise station, but stated to be from Australia, they are certainly entirely wanting.

3. **P. brachystephana**, *F. Muell.* Glabrous, like *P. Banksii*. Leaves smaller but otherwise precisely the same. Flowers also differing only in size. Calyx under 1 in. long. Petals less than half as long. Corona very short, but otherwise like that of *P. Banksii*.—*Disemma brachystephana*, *F. Muell.* Fragm. i. 56.

Queensland. Scrub on the Burdekin, *F. Mueller*.

There was but a single expanded flower on the specimens, and in that the petals do not show, but on examining a bud, I found the structure precisely as in *P. Banksii*. The species will require verifying on better specimens.

2. MODECCA, Lam.

Flowers unisexual. Calyx-tube short, campanulate or elongated. Petals small, especially in the females. Stamens as many as calyx-lobes, usually with a small scale opposite to each, free or united at the base, reduced in the females to small staminodia, or wanting. Ovary rudimentary in the males, more or less stalked in the females, with 3 parietal placentas, stigmas 3, sessile or nearly so, or on a 3-fid style. Capsule inflated, coriaceous or thin, more or less dehiscent in 3 valves. Seeds with a small cup-shaped aril.—Tall climbers. Leaves entire or palmately or pinnately lobed or divided; stipules often inconspicuous. Flowers usually very small, white or green, in cymes or racemes, on axillary peduncles, the rhachis produced into a simple tendril.

The genus extends over tropical Africa and Asia. The only Australian species appears to be endemic, although very nearly resembling one from Khasia.

1. **M. australis**, *R. Br. in DC. Prod.* iii. 337. A climber extending greatly amongst underwood (*A. Cunningham*), quite glabrous. Leaves on





long petioles, broadly ovate-cordate, quite entire, scarcely acuminate, 4 in. long or more, membranous, the base of the limb very shortly decurrent on the petiole and expanded into 2 rather large often confluent glands. Peduncles long and slender, terminating in a rather strong tendril, at the base of which are a pair of small opposite pedunculate cymes of very small flowers, very imperfect in our specimens, but according to Bauer's figure, given by Endlicher, presenting all the characters of the genus; the stigmas are on very short distinct styles. Capsule ovoid, inflated, about 2 in. long, very smooth. Seeds ovate, flat, almost muricate.—Endl. Iconogr. t. 114, 115.

N. Australia. Cygnet Bay, *A. Cunningham*; N.W. coast, *Bynoe*.

ORDER LIV. CUCURBITACEÆ.

Flowers usually unisexual. Calyx-tube adherent to the ovary and produced above it into a campanulate or tubular 5-toothed or 5-lobed free portion, which forms the whole calyx in the males. Petals 5, free or united in a lobed corolla, adnate to the free part of the calyx-tube and usually so confluent with it as to appear continuous with it between its teeth or lobes. Stamens 3 or 5, inserted on the calyx-tube below the petals, the filaments free or united; anthers separate or confluent into a waved or curved mass. Ovary usually 1-celled when very young, either with 3 or (rarely 1 or 5) parietal placentas soon thickening and meeting in the axis, dividing into as many or twice as many cells, or with 1 placenta and remaining 1-celled. Style 1, entire or 3-lobed, or rarely 3 almost distinct styles; stigmas 3 (rarely 4 or 5), entire or lobed. Ovules 1 or more to each placenta. Fruit succulent or coriaceous, often with a hard rind, indehiscent or bursting irregularly or rarely opening in 3 valves. Seeds usually flat, often obovate or oblong, without albumen; testa coriaceous or bony. Embryo straight; cotyledons large, usually notched at the base, with a short radicle.—Herbs (except in a few species not Australian) weak, prostrate or climbing by means of tendrils arising from the sides of the stems near the petioles, generally more or less scabrous or hispid. Leaves alternate, without stipules, usually palmately veined and angular, lobed or divided. Flowers unisexual in all the Australian genera, on axillary peduncles, the males usually in racemes or clusters, or sometimes solitary, the females generally solitary.

A considerable Order, dispersed over all but the colder regions of the globe, but most abundant in dry hot countries, especially in Africa. The nine Australian genera are all common to Asia and Africa, five of them are also in America, and one, *Bryonia*, extends to Europe.

TRIBE I. Cucurbitææ.—*Ovules numerous, horizontal.*

Anther-cells very flexuose or conduplicate.

Calyx-tube elongated. Petals fringed with long cilia 1. TRICHOSANTHES.

Calyx-tube broadly campanulate or turbinate. Petals not fringed.

Tendrils branched.

Male flowers large, solitary. Fruit large, with a hard rind, dry but not fibrous 2. LAGENARIA.

Male flowers in pedunculate racemes. Fruit dry, fibrous 3. LUFFA.

Male flowers small, in clusters or short sessile racemes (in the Australian species). Fruit a small berry 6. BRYONIA.

Tendrils simple.

Anthers tipped with an appendage to the connective. Fruit pulpy or fleshy 4. CUCUMIS.

Anthers without appendage.

Corolla with incurved scales at the insertion of the stamens.

Fruit usually pulpy, sometimes dehiscent 5. MOMORDICA.

Corolla without incurved scales. Fruit a small berry 6. BRYONIA.

Anther-cells straight, parallel.

Calyx-tube broadly campanulate. Anthers without appendage.

Female flowers pedunculate, bearing staminodia 7. MELOTHRIA.

Calyx-tube turbinate. Anthers with a minute appendage. Female flowers sessile, without staminodia 8. MUKIA.

TRIBE II. *Sicyæ*.—*Ovules solitary, pendulous*.

Tendrils branched. Flowers small. Fruit small, prickly in the Australian species 9. SICYOS.

1. TRICHOSANTHES, Linn.

Calyx in the males and free part of it in the females oblong or cylindrical, dilated upwards, 5-lobed. Corolla rotate, deeply divided into 5 oblong or lanceolate lobes, bordered by long hair-like lobes or cilia. Stamens in the males 3, filaments very short, free; anthers 2 with 2 cells, one with 1 cell, the cells conduplicate. Ovary in the females oblong or globular, with 3 placenta; style slender, with 3 linear stigmas, the gynæcium reduced in the males to 3 filiform rudiments. Fruit succulent, often large, with a hard rind. Seeds smooth or with undulate or crenate margins.—Climbing annuals or perennials. Tendrils 2- or 3-branched. Flowers white, large or small, the males in pedunculate racemes, the females solitary.

The genus is dispersed over tropical Asia and America. Of the four Australian species two are common Asiatic ones, the other two are endemic, but as yet insufficiently known.

Leaves palmately or pedately divided into petiolate segments . . . 1. *T. pentaphylla*.
Leaves palmately lobed.

Male racemes without bracts. Fruits acuminate 2. *T. cucumerina*.

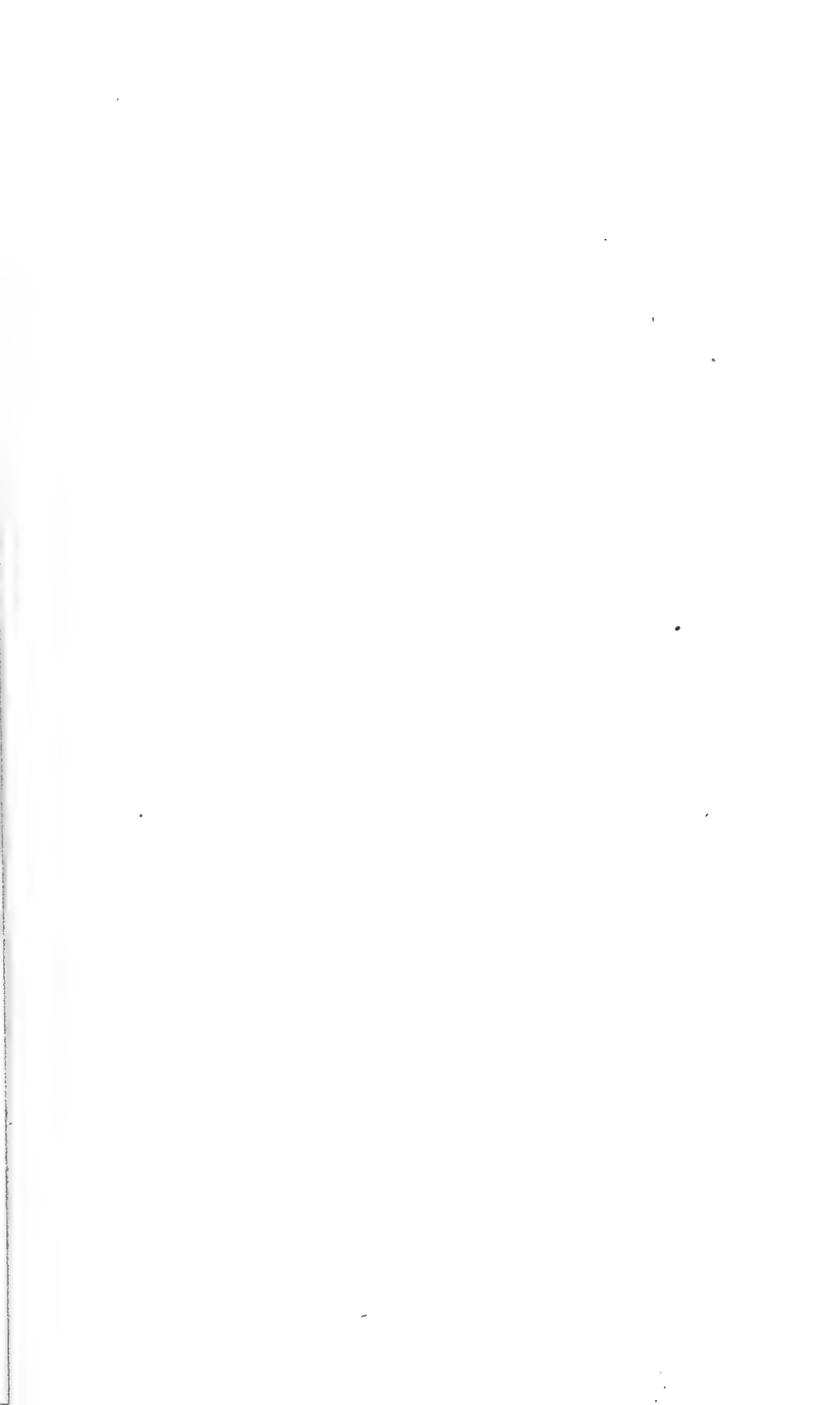
Male racemes with large broad leafy bracts. Fruits not acuminate . . . 3. *T. palmata*.

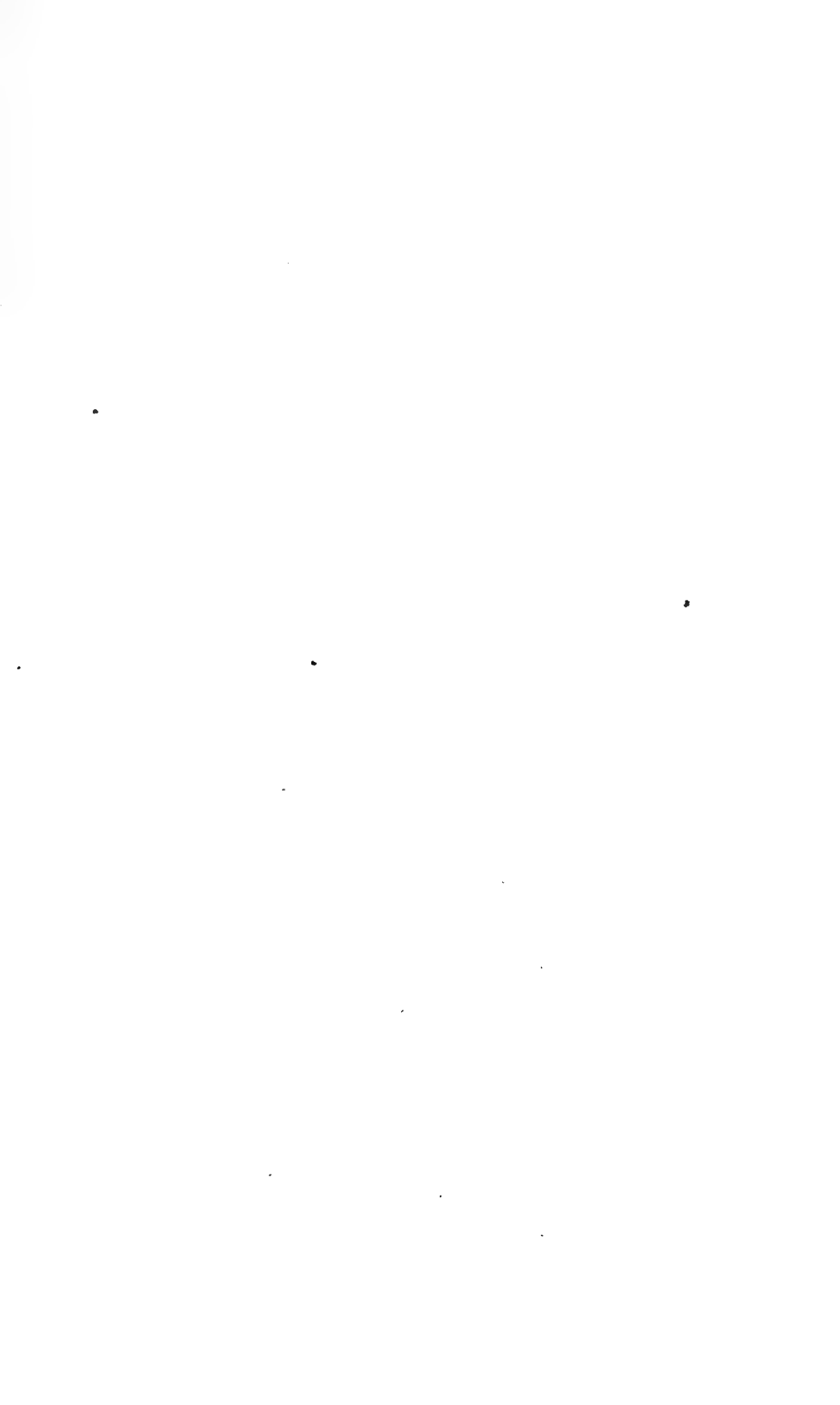
Leaves ovate-cordate, not lobed, softly villous. Male racemes with small oblong or lanceolate bracts 4. *T. Hearnii*.

1. ***T. (?) pentaphylla*, F. Muell. Herb.** Apparently a large climber, the specimens quite glabrous. Leaves palmately or pedately divided into 5 ovate or ovate-lanceolate acuminate entire segments, about 3 to 5 in. long, all petiolulate or the lateral ones rarely united at the base. Tendrils 3-branched. Male flowers unknown. Females solitary, shortly pedicellate. Calyx-tube cylindrical, rather thick, broad and obtuse at the base, produced far above the ovary, rather more than 1 in. long; lobes broadly lanceolate, acuminate, 3 to 4 lines long, entire or with 1 or 2 teeth. Corolla-lobes fringed. Fruit "as round as a ball, beautifully red, the flesh deep yellow, the pulp dark green" (*Dallachy*). Seeds compressed, thick, oblong, the margin entire.

Queensland. Burdekin river, *F. Mueller*; Rockingham Bay, *Dallachy*. The specimens do not admit of the further examination of the flowers, of which there is only one ready to open. The foliage is that of a *Telfairia*, to which it may possibly have to be transferred notwithstanding the narrower seeds, unless the two genera be combined into one.

2. ***T. cucumerina*, Linn. Spec. Pl. 1432.** Stems slender, although sometimes extending to a great length. Leaves nearly orbicular or reniform







in their outline, broadly cordate at the base, mostly 3 to 4 in. diameter, palmately 3- to 7-lobed, the lobes broad, rarely reaching to the middle and irregularly toothed, more or less scabrous-pubescent. Tendrils 3-branched. Male flowers in a short raceme at the end of a long slender peduncle, without bracts. Calyx-tube, in the young bud, short broad and rounded at the base; teeth very short and recurved. Corolla-lobes narrow-oblong, $\frac{1}{2}$ in. long, besides the fringe of long cilia. Female flowers shortly pedicellate. Calyx-tube attenuate above the ovary into a long slender neck. Fruit ovoid-conical, acuminate, not exceeding 2 in., orange-red or yellow when ripe. Seeds about 8 or 10, thick but flattened, with the margin more or less crenate.—Naud. in Ann. Sc. Nat. ser. 4. xviii. 191.

N. Australia. Victoria river, *F. Mueller*; bare rocky hills, Nichol Bay, *Gregory's Expedition*. Common in hedges, etc., in East India.

3. **T. palmata**, *Roxb. Fl. Ind.* iii. 704. A coarse climber. Leaves broad, palmately 3- to 7-lobed, the lobes sometimes broad and short, more frequently especially the central one reaching to below the middle and more or less sinuate-toothed or lobed, pubescent. Male racemes on long stout peduncles, at first short and head-like, at length elongated, with a broadly cuneate or orbicular toothed or jagged bract at least 1 in. diameter under each pedicel. Pedicels very short. Calyx-tube above 1 in. long, attenuate below the middle; lobes ovate or lanceolate, acuminate, 3 to 4 lines long. Petals obovate, fringed with very long cilia. Female flowers shortly pedicellate. Calyx-tube abruptly contracted above the ovary. Fruit nearly globular, not acuminate, 2 to 3 in. diameter.—Wight and Arn. Prod. 350, with the synonyms adduced; Wight, Illustr. t. 104, 105.

Queensland. Brisbane river, *W. Hill*; Rockingham Bay, *Dallachy* (with larger less lobed leaves).

N. S. Wales. Tweed river, *C. Moore*.

The species is common in forests in India, where it climbs to the tops of the loftiest trees (*Roxburgh*).

4. **T. Hearnii**, *F. Muell. Herb.* Of this there are two male fragments in *F. Mueller's* collection under the name of *T. Hearnii*. Leaves broadly cordate-ovate, denticulate and sometimes obscurely sinuate-lobed, like those of *T. dioica*, *Roxb.* (now united to *T. nervifolia*) and *T. cordata*, but, instead of being scabrous-pubescent only they are densely and softly villous underneath. Male racemes on long peduncles. Bracts persistent, oblong or lanceolate, entire or toothed, but only 2 or 3 lines long. Calyx-tube slender, attenuate at the base, above $\frac{1}{2}$ in. long; lobes narrow, acute. Petals broadly oblong, densely fringed with long cilia.

Queensland. Rockingham Bay, *Dallachy* (*Herb. F. Mueller*).

A male specimen in Herb. R. Br., from the islands of the Gulf of Carpentaria, in bud only, may belong to the same species, but some of the leaves are deeply divided into 2 to 5 lobes.

2. LAGENARIA, Ser.

Calyx in the males, and free part of it in the females, campanulate or tubular, with 5 teeth or lobes. Corolla campanulate, deeply 5-lobed. Stamens in the males 3, shorter than the calyx-tube; filaments free; anthers two with 2 cells, one with 1 cell, the cells linear, flexuose, bordering the con-

nective. Ovary in the females from obovoid to cylindrical, with 3 placentas, and numerous horizontal ovules; style short, thick, with 3 bifid stigmas. Fruit large, indehiscent, with a hard rind and fungous flesh. Seeds variously shaped.—Large climber. Tendrils 2-branched. Flowers white, both males and females solitary.

The genus consists only of a single species.

1. ***L. vulgaris***, *Ser. in DC. Prod.* iii. 299. A coarse climber, often emitting a musky odour, more or less pubescent or villous. Leaves rather large, broadly orbicular-cordate, angular and denticulate or obscurely or shortly lobed. Tendrils usually 2-branched. Male flowers rather large, white, on peduncles of 2 to 4 in. Calyx-tube turbinate, about $\frac{1}{2}$ in. long; lobes or teeth linear, shorter than the tube. Corolla expanding to 2 or 3 in. diameter. Female flowers rather smaller, on shorter peduncles. Fruit very variable in shape and size.

Queensland. From Broad Sound to Port Denison, *Thozet*.—The species appears to be indigenous in Asia and Africa, but is much cultivated and establishes itself in many tropical and subtropical countries. It includes the *bottle*- and many other *Gourds*.

3. **LUFFA**, Cav.

Calyx in the males, and free part of it above a narrow tube in the females, campanulate or turbinate, with 5 teeth. Corolla rotate, deeply divided into 5 oblong-obovate or obcordate lobes. Stamens in the males 3 or rarely 5; filaments free, or two connate and the third free; anthers protruding from the calyx-tube, two with 2 cells, one with 1 cell, the cells flexuose, the connective without any appendage. Ovary in the females elongated, with 3 placentas and many horizontal ovules; style columnar, the stigma divided into 3 bifid lobes; rudimentary gynæcium in the males a small gland. Fruit dry, oblong or cylindrical, terete or ribbed, fibrous inside, the small hard conical end (or base of the style) circumsciss and deciduous. Seeds oblong, compressed.—Prostrate or climbing annuals, often large. Leaves palmately 3- or 7-lobed. Tendrils branched. Flowers rather large, yellow or white, the males in pedunculate racemes, the females solitary. Fruits usually rather large.

The genus comprises a few Asiatic and a greater number of African species. The Australian species appear both of them to be included in the Asiatic ones; one of them also abundant in Africa.

Fruit smooth 1. *L. ægyptiaca*.
Fruit tuberculate or muricate 2. *L. graveolens*.

1. ***L. ægyptiaca***, *Mill. Dict.; Ser. in DC. Prod.* iii. 303. A large climber. Leaves large, broad, the lower ones 5-angled, the upper ones more or less deeply 5-lobed, the lobes, at least the central one, usually acute, often above 6 in. diameter, more or less scabrous. Tendrils 3-branched. Male racemes elongated, on long peduncles, without bracts. Pedicels short. Calyx broadly turbinate, about $\frac{1}{2}$ in. diameter. Corolla more than 1 in. diameter. Fruit oblong, from 2 or 3 to 8 or 10 in. long, smooth, with 10 deeper coloured streaks when fresh, which in the dry state are often slightly raised ribs, but not acutely prominent as in *L. acutangula*.—*L. pentandra*, Roxb.

Fl. Ind. iii. 712 ; Wight, Ic. t. 499 ; *L. cylindrica*, Rœm. ; Naud. in Ann. Sc. Nat. ser. 4. xii. 119, with the long list of synonyms adduced ; *L. leio-carpa*, F. Muell. Fragm. iii. 107.

Queensland. Gilbert and Burdekin rivers, *F. Mueller* ; Fitzroy river, *Thozet* ; Edgecombe Bay, *Dallachy*.

The species is widely spread over tropical and subtropical Africa and Asia. Naudin distinguishes the Australian plant as a variety which *F. Mueller* raises to a species on account of the fruit said to be not larger than a fowl's egg without longitudinal lines. But in the specimens sent by *F. Mueller* from the Gilbert river, the fruits are quite as large, and the slightly raised lines quite as conspicuous as in several of the Indian ones.

2. ***L. graveolens*, Roxb.** *Fl. Ind.* iii. 716 ? A much more slender and smaller plant than *L. ægyptiaca*, the leaves smaller and less divided, the lobes short and broad, sometimes very obscure, all rounded and slightly sinuate-denticulate, or the central lobe more acute. Flowers smaller than in *L. ægyptiaca*, the males in long racemes, but also a solitary male on a rather long pedicel in the same axil as the female one in all the Australian specimens. Fruits ovoid, 2 to 3 in. long, not ribbed, mucicate with scattered rigid tubercles or very short spines. Seeds flat, smooth, about 3 lines long.—*Naud.* in Ann. Sc. Nat. ser. 4. xii. 124 ; *F. Muell.* Fragm. iii. 106.

N. Australia. N.W. coast, *Bynoe* ; tributaries of the Victoria river, *F. Mueller*.

The species, if correctly determined, is also on the coast of Coromandel, but the specimens are so imperfect that it is impossible to establish without doubt the identity concluded by Naudin from the fruit. In several of the Australian specimens the leaves are much more acutely lobed than they are represented in Roxburgh's drawing, and the calyx-lobes have a hollow protuberance at the base, which suggested to *F. Mueller* the specific name of *L. saccata* which he had given to his plant. These protuberances do not appear in the Indian species, nor can I find them in some of the Australian specimens with leaves more like Roxburgh's, but the few flowers are too ill-dried to ascertain the point. Naudin says the fruit is scarcely bigger than a pigeon's egg. Some of those in the Kew herbaria are nearly 3 in. long.

4. CUCUMIS, Linn.

Calyx in the males, and free part of it in the females turbinate or campanulate, with 5 teeth or lobes. Corolla campanulate, deeply 5-lobed or divided to the calyx. Stamens 3 ; filaments short, free ; anthers two with 2 cells, one with 1 cell ; cells linear, flexuose, connective produced into a crest-like appendage beyond the cells. Ovary in the female with 3 (rarely 5) placentas and numerous horizontal ovules ; style short, with 3 (rarely 5) obtuse stigmas. Fruit variously shaped, fleshy with a hard rind, indehiscent or rarely tardily opening in 3 valves. Seeds oblong, compressed, the margin not thickened.—Climbers either annual or with a perennial rhizome, more or less hispid. Tendrils simple. Flowers yellow, the males in axillary clusters or rarely solitary, the females solitary, usually sessile or shortly pedicellate.

The genus extends over the tropical and subtropical regions of the New and the Old World. The only Australian species is a common one in Asia.

1. ***C. trigonus*, Roxb.** *Fl. Ind.* iii. 722. A rather slender creeper or climber, sometimes rigidly hispid, almost aculeolate, sometimes scabrous-pubescent. Leaves not large, usually broadly ovate-cordate in their outline, either nearly entire or more or less 3-5- or 7-lobed, the lobes slightly or sometimes more deeply toothed, usually scabrous. Flowers small, on short slender pedicels. Calyx in the males from a little more than 1 line to nearly

2 lines long, pubescent-hirsute or densely woolly; lobes short and narrow. Corolla about $\frac{1}{2}$ in. diameter, the lobes acute. Female flowers usually rather larger, the adnate tube ovoid or oblong, 3 to 4 lines long, tomentose-pubescent or densely woolly. Fruit globular or ovoid, often quite glabrous, but sometimes retaining a few scattered hairs, from under 1 in. diameter to more than twice that size.—Wight, Ic. t. 497; Naud. in Ann. Sc. Nat. ser. 4. xi. 30; *C. pubescens*, Hook. in Mitch. Trop. Austr. 110; *C. jucundus* and *C. picrocarpus*, F. Muell. in Trans. Phil. Inst. Vict. iii. 46.

N. Australia. Oakover river, Nichol Bay, *Gregory's Expedition*; Victoria river, F. Mueller; Port Essington, *Armstrong*; Albert river, *Henne*; in the interior, *M'Douall Stuart's Expedition*.

Queensland. Suttor and Bogan rivers, *Bowman*; Fort Cooper, *Thozet*.

N. S. Wales. Narran and Balonne rivers, *Mitchell*; Darling river to Cooper's Creek, *Victorian and other Expeditions*.

The only absolute difference to be gathered from Naudin's investigations between *C. trigonus*, and what he concludes to be the wild Melon (*C. Melo*, var. *agrestis*, Naud. in Ann. Sc. Nat. ser. 4. xi. 73; *C. pubescens*, of Indian botanists, Wight, Ic. t. 496, and probably of Willd.), is, that the former has a perennial root, or rather rhizome, and roots very readily at the joints, whilst the Melon is strictly annual. As, however, the stems are always annual, the existence of the perennial rhizome is rarely ascertained except in cultivation, and no collectors of Australian specimens allude to it. Some of these look very much like Indian specimens of the wild Melon, others have more the appearance of the Indian *C. trigona*, and some are not to be distinguished from the New Caledonian *C. Pancherianus*, Naud. in Ann. Sc. Nat. ser. 4. xii. 112. t. 8. Most probably all are forms only of *C. Melo*.

C. myriocarpus, Naud. l. c. xi. 22, with leaves deeply divided into rounded ciliate lobes, nearly glabrous above, rigidly hispid underneath, and with small globular densely prickly fruits on filiform pedicels, commonly known in gardens as *C. prophetarum*, but not the true Linnæan species of that name, is in F. Mueller's collection from the banks of the Torrens river in S. Australia, as an introduced plant.

5. MOMORDICA, Linn.

Calyx in the males, and free part of it in the females, short, campanulate, with 5 lobes. Corolla rotate or broadly campanulate, usually divided to the calyx into 5 lobes. Stamens in the males 2 or 3; filaments short, free; anthers at first coherent, at length free, one or two 2-celled, the others 1-celled, the cells flexuose, the connective without any appendage. Two (or three?) connivent scales on the tube of the calyx and corolla at the insertion of the stamens. Ovary in the females fusiform or oblong, with 3 placentas and several horizontal ovules; style slender, with 3 stigmas. Fruit oblong, fusiform or cylindric, not fibrous, indehiscent or opening more or less in 3 valves. Seeds imbedded in pulp, flattened or convex, smooth or variously sculptured.—Climbers usually slender. Leaves entire, lobed or 3- to 7-foliate. Tendrils simple. Peduncles axillary, either all 1-flowered, with a broad bract under the flower, or the males paniculate.

The genus is dispersed over the tropical and subtropical regions of both the New and the Old World; most of the species, however, are African. The only Australian one is common in Asia and Africa.

1. **M. Balsamina**, Linn.; *Ser. in DC. Prod.* iii. 311. A slender annual climber. Leaves thin and glabrous, orbicular in their circumscription, mostly under 2 in. diameter, palmately and deeply 5-lobed, the lobes more or less rhomboidal, deeply and acutely toothed or lobed. Peduncles all slender and







1-flowered, the males usually longer than the leaf, with a reniform or broadly cordate bract a little below the flower, the females shorter, with the bract below the middle. Calyx fully $\frac{1}{2}$ in. diameter, with very thin broad acute lobes longer than the tube. Corolla yellow, nearly twice as long as the calyx. Female flowers rather smaller. Ovary fusiform, attenuate under the free part of the calyx. Fruit ovoid-globular, more or less attenuate at the end, about 1 in. diameter, bursting irregularly. Seeds 5 or 6, rather large, each one enveloped in a red pulp.

Queensland. Rockhampton, *Dallachy*.—Widely spread over Asia and Africa, and now introduced into America.

6. BRYONIA, Linn.

(*Bryonopsis*, *Blume*.)

Calyx in the males, and free part of it in the females, broadly campanulate, 5-toothed. Corolla campanulate, deeply 5-lobed. Stamens in the males 3; filaments free; anthers two with 2 cells, one with 1 cell, the cells flexuose. Ovary in the females fusiform, ovoid or globular, contracted at the top, with 3 placentas and few horizontal ovules; style slender, with 3 reniform or bifid stigmas. Fruit a globular or ovoid-conical berry. Seeds few, compressed, or with convex faces and a thickened margin enveloped in pulp.—Climbing herbs with simple or 2-branched tendrils. Leaves palmately lobed. Flowers greenish-yellow, small as well as the fruits, in axillary racemes sometimes reduced to clusters.

The genus, taken in the above extended sense given to it by most botanists, although not numerous in species, ranges over the warmer and temperate regions both of the New and the Old World. The Australian species, however, belongs to the section *Bryonopsis*, now adopted by Naudin as a distinct genus, limited to 2 or perhaps 3 Asiatic and African species, of which the Australian is one.

1. **B. laciniosa**, Linn.; *Ser. in DC. Prod.* iii. 308. Stems rather slender, but extending to a great length. Leaves broad, very deeply palmatifid or almost pedatifid, the lobes ovate ovate-lanceolate or sometimes linear-lanceolate, often 3 to 4 in. long, and more or less angular or sinuate-toothed. Tendrils usually 2-branched, but one branch sometimes small or quite wanting. Flowers small, in very short axillary racemes usually reduced to clusters, the males and females often in the same axil, the rhachis rarely 3 to 4 lines long. Pedicels slender, from 1 to 5 or 6 lines long. Calyx $1\frac{1}{2}$ to 2 lines diameter. Corolla scarcely twice the size of the calyx. Berry globular, yellow or red, about 1 in. diameter. Seeds with a very thick transversely-furrowed border, the faces convex or conical within the border.—Wight, l. c. t. 500; Naud. in *Ann. Sc. Nat.* ser. 4. xii. 139, with the synonyms adduced; *Zehneria erythrocarpa*, F. Muell. in *Hook. Kew Journ.* viii. 51 (from the character given).

N. Australia. Sir Charles Hardy's Island, *Henne*; Port Essington, *Armstrong*.

Queensland. Broad Sound, *R. Brown*; N.E. coast, *A. Cunningham*; Burdekin river, *F. Mueller*; Suttor river, *Bowman*; Rockhampton, *Thozet*, *Dallachy*; Brisbane river, Moreton Bay, *F. Mueller*.

N. S. Wales. Macleay river, *Beckler*; Clarence river, *Wilcox*.

The species is dispersed over tropical Asia and Africa. Naudin, *Ann. Sc. Nat.* ser. 4. xii. 140, and xviii. 193, distinguishes this species, with 1 or 2 closely allied ones (or perhaps

varieties) as the above-mentioned genus *Bryonopsis*. This name was originally proposed by Blume for several old *Bryonias* now referred to *Zehneria* and other groups, and is now limited by Naudin to *B. laciniosa* and its allies, characterized especially by the seed, but also by monœcious not dioecious flowers, the clustered not racemose inflorescence, and branched not simple tendrils. But one of our European true *Bryonias* is monœcious, the clusters of *B. laciniosa* are nothing but short racemes, and the branched tendrils, although general, are not constant, and the genus rests solely on the seed, which appears to me to be a much better sectional than generic character.

7. MELOTHRIA, Linn.

Calyx in the males, and upper free part of it in the females, campanulate, shortly 5-toothed. Corolla rotate, deeply 5-lobed, with narrow lobes. Stamens in the males 3; filaments short, free; anthers often slightly cohering, two with 2 cells, one with 1 cell, the cells straight and parallel, 3 small staminodia in the females. Ovary in the females with 3 placentas and several horizontal ovules; style short, with 3 capitate, dilated or bifid stigmas. Fruit a small globular ovoid or fusiform berry. Seeds flat, oval or oblong, enveloped in pulp.—Slender climbing or prostrate herbs. Leaves triangular or palmately lobed. Tendrils simple. Flowers very small, yellow, the males in short racemes almost reduced to pedunculate umbels or sessile clusters, the females on slender axillary pedicels, solitary or clustered.

The genus is dispersed over the tropical and subtropical regions of the New and the Old World, most abundant in Africa. The Australian species are both endemic.

Leaves broadly triangular or hastate. Male flowers in a pedunculate umbel-like raceme. Females on long filiform pedicels 1. *M. Cunninghamii*.
Leaves palmately 5- or 7-lobed. Male and female flowers minute, clustered in the same axils on filiform but rather short pedicels . . . 2. *M. Muelleri*.

1. ***M. Cunninghamii*, F. Muell.** (as *Zehneria*). Stems very slender, often filiform. Leaves broadly triangular or hastate, irregularly but not deeply toothed, or rarely obscurely 3- or 5-lobed, thin and somewhat scabrous, the larger ones nearly 3 in. long, but mostly smaller. Tendrils simple, filiform. Male peduncles slender, bearing at the end a short corymbose raceme almost reduced to an umbel of about 6 small yellow flowers. Female flowers usually solitary in the axils, on filiform pedicels of 1 to 2 in., with rarely a male flower in the same axil. Calyx about 1 line diameter. Corolla about 2 lines diameter. Ovary or calyx-tube of the females attenuate into a slender neck. Stigmas capitate. Berry globular, 3 to 4 lines diameter.—*Zehneria Cunninghamii*, F. Muell. in Hook. Kew Journ. viii. 51.

N. Australia. Arnhem N. Bay, R. Brown.

Queensland. Brisbane river, Moreton Bay, F. Mueller; Breakfast Creek, Bowman; Rockhampton, Dallachy.

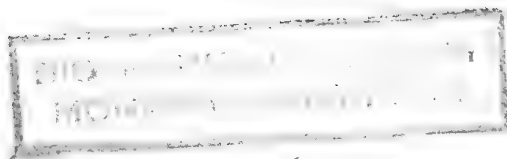
N. S. Wales. Paramatta, Woolls; Clarence river, Beckler.

This species is nearly allied to the African *M. triangularis*, Benth. The northern specimens in Herb. R. Brown, have the leaves broadly cordate, the flowers rather longer and the fruits rather larger, almost ovoid, but they appear to belong to the same species.

2. ***M. Muelleri*, Benth.** Small and rather slender, very scabrous but not hispid. Leaves on long petioles, deeply cordate, nearly orbicular, 1 to 2 in. diameter, shortly and palmately 5- to 7-lobed, the lobes mostly obtuse, coarsely toothed or lobed. Tendrils small, filiform, simple. Flowers minute, on filiform pedicels of 2 to 3 lines, the males and females clustered in the







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